

SEQUENCE LISTING

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<120> Therapeutic TB Vaccine

<130> SSI5AUSA

<150> DK PA 2002 01098
<151> 2002-07-13

<150> US 60/401,725
<151> 2002-08-07

<160> 187

<170> PatentIn version 3.2

<210> 1
<211> 273
<212> PRT
<213> Mycobacterium tuberculosis

<400> 1

Val Glu Pro Lys Arg Ser Arg Leu Val Val Cys Ala Pro Glu Pro Ser
1 5 10 15

His Ala Arg Glu Phe Pro Asp Val Ala Val Phe Ser Gly Gly Arg Ala
20 25 30

Asn Ala Ser Gln Ala Glu Arg Leu Ala Arg Ala Val Gly Arg Val Leu
35 40 45

Ala Asp Arg Gly Val Thr Gly Gly Ala Arg Val Arg Leu Thr Met Ala
50 55 60

Asn Cys Ala Asp Gly Pro Thr Leu Val Gln Ile Asn Leu Gln Val Gly
65 70 75 80

Asp Thr Pro Leu Arg Ala Gln Ala Ala Thr Ala Gly Ile Asp Asp Leu
85 90 95

Arg Pro Ala Leu Ile Arg Leu Asp Arg Gln Ile Val Arg Ala Ser Ala
100 105 110

Gln Trp Cys Pro Arg Pro Trp Pro Asp Arg Pro Arg Arg Arg Leu Thr
115 120 125

Thr Pro Ala Glu Ala Leu Val Thr Arg Arg Lys Pro Val Val Leu Arg
130 135 140

Arg Ala Thr Pro Leu Gln Ala Ile Ala Ala Met Asp Ala Met Asp Tyr
 145 150 155 160

Asp Val His Leu Phe Thr Asp Ala Glu Thr Gly Glu Asp Ala Val Val
 165 170 175

Tyr Arg Ala Gly Pro Ser Gly Leu Arg Leu Ala Arg Gln His His Val
 180 185 190

Phe Pro Pro Gly Trp Ser Arg Cys Arg Ala Pro Ala Gly Pro Pro Val
 195 200 205

Pro Leu Ile Val Asn Ser Arg Pro Thr Pro Val Leu Thr Glu Ala Ala
 210 215 220

Ala Val Asp Arg Ala Arg Glu His Gly Leu Pro Phe Leu Phe Phe Thr
 225 230 235 240

Asp Gln Ala Thr Gly Arg Gly Gln Leu Leu Tyr Ser Arg Tyr Asp Gly
 245 250 255

Asn Leu Gly Leu Ile Thr Pro Thr Gly Asp Gly Val Ala Asp Gly Leu
 260 265 270

Ala

<210> 2
 <211> 152
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 2

Met Ser Pro Gly Ser Arg Arg Ala Ser Pro Gln Ser Ala Arg Glu Val
 1 5 10 15

Val Glu Leu Asp Arg Asp Glu Ala Met Arg Leu Leu Ala Ser Val Asp
 20 25 30

His Gly Arg Val Val Phe Thr Arg Ala Ala Leu Pro Ala Ile Arg Pro
 35 40 45

Val Asn His Leu Val Val Asp Gly Arg Val Ile Gly Arg Thr Arg Leu
 50 55 60

Thr Ala Lys Val Ser Val Ala Val Arg Ser Ser Ala Asp Ala Gly Val
65 70 75 80

Val Val Ala Tyr Glu Ala Asp Asp Leu Asp Pro Arg Arg Arg Thr Gly
85 90 95

Trp Ser Val Val Val Thr Gly Leu Ala Thr Glu Val Ser Asp Pro Glu
100 105 110

Gln Val Ala Arg Tyr Gln Arg Leu Leu His Pro Trp Val Asn Met Ala
115 120 125

Met Asp Thr Val Val Ala Ile Glu Pro Glu Ile Val Thr Gly Ile Arg
130 135 140

Ile Val Ala Asp Ser Arg Thr Pro
145 150

<210> 3
<211> 114
<212> PRT
<213> Mycobacterium tuberculosis

<400> 3

Val Glu Ser Glu Pro Leu Tyr Lys Leu Lys Ala Glu Phe Phe Lys Thr
1 5 10 15

Leu Ala His Pro Ala Arg Ile Arg Ile Leu Glu Leu Leu Val Glu Arg
20 25 30

Asp Arg Ser Val Gly Glu Leu Leu Ser Ser Asp Val Gly Leu Glu Ser
35 40 45

Ser Asn Leu Ser Gln Gln Leu Gly Val Leu Arg Arg Ala Gly Val Val
50 55 60

Ala Ala Arg Arg Asp Gly Asn Ala Met Ile Tyr Ser Ile Ala Ala Pro
65 70 75 80

Asp Ile Ala Glu Leu Leu Ala Val Ala Arg Lys Val Leu Ala Arg Val
85 90 95

Leu Ser Asp Arg Val Ala Val Leu Glu Asp Leu Arg Ala Gly Gly Ser
100 105 110

Ala Thr

<210> 4
 <211> 344
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 4

Met Pro Ile Ala Thr Pro Glu Val Tyr Ala Glu Met Leu Gly Gln Ala
 1 5 10 15

Lys Gln Asn Ser Tyr Ala Phe Pro Ala Ile Asn Cys Thr Ser Ser Glu
 20 25 30

Thr Val Asn Ala Ala Ile Lys Gly Phe Ala Asp Ala Gly Ser Asp Gly
 35 40 45

Ile Ile Gln Phe Ser Thr Gly Gly Ala Glu Phe Gly Ser Gly Leu Gly
 50 55 60

Val Lys Asp Met Val Thr Gly Ala Val Ala Leu Ala Glu Phe Thr His
 65 70 75 80

Val Ile Ala Ala Lys Tyr Pro Val Asn Val Ala Leu His Thr Asp His
 85 90 95

Cys Pro Lys Asp Lys Leu Asp Ser Tyr Val Arg Pro Leu Leu Ala Ile
 100 105 110

Ser Ala Gln Arg Val Ser Lys Gly Gly Asn Pro Leu Phe Gln Ser His
 115 120 125

Met Trp Asp Gly Ser Ala Val Pro Ile Asp Glu Asn Leu Ala Ile Ala
 130 135 140

Gln Glu Leu Leu Lys Ala Ala Ala Ala Ala Lys Ile Ile Leu Glu Ile
 145 150 155 160

Glu Ile Gly Val Val Gly Gly Glu Glu Asp Gly Val Ala Asn Glu Ile
 165 170 175

Asn Glu Lys Leu Tyr Thr Ser Pro Glu Asp Phe Glu Lys Thr Ile Glu
 180 185 190

Ala Leu Gly Ala Gly Glu His Gly Lys Tyr Leu Leu Ala Ala Thr Phe
 195 200 205

Gly Asn Val His Gly Val Tyr Lys Pro Gly Asn Val Lys Leu Arg Pro
 210 215 220

Asp Ile Leu Ala Gln Gly Gln Gln Val Ala Ala Ala Lys Leu Gly Leu
 225 230 235 240

Pro Ala Asp Ala Lys Pro Phe Asp Phe Val Phe His Gly Gly Ser Gly
 245 250 255

Ser Leu Lys Ser Glu Ile Glu Glu Ala Leu Arg Tyr Gly Val Val Lys
 260 265 270

Met Asn Val Asp Thr Asp Thr Gln Tyr Ala Phe Thr Arg Pro Ile Ala
 275 280 285

Gly His Met Phe Thr Asn Tyr Asp Gly Val Leu Lys Val Asp Gly Glu
 290 295 300

Val Gly Val Lys Lys Val Tyr Asp Pro Arg Ser Tyr Leu Lys Lys Ala
 305 310 315 320

Glu Ala Ser Met Ser Gln Arg Val Val Gln Ala Cys Asn Asp Leu His
 325 330 335

Cys Ala Gly Lys Ser Leu Thr His
 340

<210> 5
 <211> 113
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 5

Met Gly Glu His Ala Ile Lys Arg His Met Arg Gln Arg Lys Pro Thr
 1 5 10 15

Lys His Pro Leu Ala Gln Lys Arg Gly Ala Arg Ile Leu Val Phe Thr
 20 25 30

Asp Asp Pro Arg Arg Ser Val Leu Ile Val Pro Gly Cys His Leu Asp
 35 40 45

Ser Met Arg Arg Glu Lys Asn Ala Tyr Tyr Phe Gln Asp Gly Asn Ala
 50 55 60

Leu Val Gly Met Val Val Ser Gly Gly Thr Val Glu Tyr Asp Ala Asp
 65 70 75 80

Asp Arg Thr Tyr Val Val Gln Leu Thr Asp Gly Arg His Thr Thr Glu
85 90 95

Ser Ser Phe Glu His Ser Ser Pro Ser Arg Ser Pro Gln Ser Asp Asp
100 105 110

Leu

<210> 6
<211> 380
<212> PRT
<213> Mycobacterium tuberculosis

<400> 6

Val Ala Gly Asn Pro Asp Val Val Thr Val Leu Leu Gly Gly Asp Val
1 5 10 15

Met Leu Gly Arg Gly Val Asp Gln Ile Leu Pro His Pro Gly Lys Pro
20 25 30

Gln Leu Arg Glu Arg Tyr Met Arg Asp Ala Thr Gly Tyr Val Arg Leu
35 40 45

Ala Glu Arg Val Asn Gly Arg Ile Pro Leu Pro Val Asp Trp Arg Trp
50 55 60

Pro Trp Gly Glu Ala Leu Ala Val Leu Glu Asn Thr Ala Thr Asp Val
65 70 75 80

Cys Leu Ile Asn Leu Glu Thr Thr Ile Thr Ala Asp Gly Glu Phe Ala
85 90 95

Asp Arg Lys Pro Val Cys Tyr Arg Met His Pro Asp Asn Val Pro Ala
100 105 110

Leu Thr Ala Leu Arg Pro His Val Cys Ala Leu Ala Asn Asn His Ile
115 120 125

Leu Asp Phe Gly Tyr Gln Gly Leu Thr Asp Thr Val Ala Ala Leu Ala
130 135 140

Gly Ala Gly Ile Gln Ser Val Gly Ala Gly Ala Asp Leu Leu Ala Ala
145 150 155 160

Arg Arg Ser Ala Leu Val Thr Val Gly His Glu Arg Arg Val Ile Val
165 170 175

Gly Ser Val Ala Ala Glu Ser Ser Gly Val Pro Glu Ser Trp Ala Ala
180 185 190

Arg Arg Asp Arg Pro Gly Val Trp Leu Ile Arg Asp Pro Ala Gln Arg
195 200 205

Asp Val Ala Asp Asp Val Ala Ala Gln Val Leu Ala Asp Lys Arg Pro
210 215 220

Gly Asp Ile Ala Ile Val Ser Met His Trp Gly Ser Asn Trp Gly Tyr
225 230 235 240

Ala Thr Ala Pro Gly Asp Val Ala Phe Ala His Arg Leu Ile Asp Ala
245 250 255

Gly Ile Asp Met Val His Gly His Ser Ser His His Pro Arg Pro Ile
260 265 270

Glu Ile Tyr Arg Gly Lys Pro Ile Leu Tyr Gly Cys Gly Asp Val Val
275 280 285

Asp Asp Tyr Glu Gly Ile Gly Gly His Glu Ser Phe Arg Ser Glu Leu
290 295 300

Arg Leu Leu Tyr Leu Thr Val Thr Asp Pro Ala Ser Gly Asn Leu Ile
305 310 315 320

Ser Leu Gln Met Leu Pro Leu Arg Val Ser Arg Met Arg Leu Gln Arg
325 330 335

Ala Ser Gln Thr Asp Thr Glu Trp Leu Arg Asn Thr Ile Glu Arg Ile
340 345 350

Ser Arg Arg Phe Gly Ile Arg Val Val Thr Arg Pro Asp Asn Leu Leu
355 360 365

Glu Val Val Pro Ala Ala Asn Leu Thr Ser Lys Glu
370 375 380

<210> 7
<211> 397
<212> PRT
<213> Mycobacterium tuberculosis

<400> 7

Val Thr Asp His Val Arg Glu Ala Asp Asp Ala Asn Ile Asp Asp Leu
1 5 10 15

Leu Gly Asp Leu Gly Gly Thr Ala Arg Ala Glu Arg Ala Lys Leu Val
20 25 30

Glu Trp Leu Leu Glu Gln Gly Ile Thr Pro Asp Glu Ile Arg Ala Thr
35 40 45

Asn Pro Pro Leu Leu Leu Ala Thr Arg His Leu Val Gly Asp Asp Gly
50 55 60

Thr Tyr Val Ser Ala Arg Glu Ile Ser Glu Asn Tyr Gly Val Asp Leu
65 70 75 80

Glu Leu Leu Gln Arg Val Gln Arg Ala Val Gly Leu Ala Arg Val Asp
85 90 95

Asp Pro Asp Ala Val Val His Met Arg Ala Asp Gly Glu Ala Ala Ala
100 105 110

Arg Ala Gln Arg Phe Val Glu Leu Gly Leu Asn Pro Asp Gln Val Val
115 120 125

Leu Val Val Arg Val Leu Ala Glu Gly Leu Ser His Ala Ala Glu Ala
130 135 140

Met Arg Tyr Thr Ala Leu Glu Ala Ile Met Arg Pro Gly Ala Thr Glu
145 150 155 160

Leu Asp Ile Ala Lys Gly Ser Gln Ala Leu Val Ser Gln Ile Val Pro
165 170 175

Leu Leu Gly Pro Met Ile Gln Asp Met Leu Phe Met Gln Leu Arg His
180 185 190

Met Met Glu Thr Glu Ala Val Asn Ala Gly Glu Arg Ala Ala Gly Lys
195 200 205

Pro Leu Pro Gly Ala Arg Gln Val Thr Val Ala Phe Ala Asp Leu Val
210 215 220

Gly Phe Thr Gln Leu Gly Glu Val Val Ser Ala Glu Glu Leu Gly His
225 230 235 240

Leu Ala Gly Arg Leu Ala Gly Leu Ala Arg Asp Leu Thr Ala Pro Pro
245 250 255

Val Trp Phe Ile Lys Thr Ile Gly Asp Ala Val Met Leu Val Cys Pro
260 265 270

Asp Pro Ala Pro Leu Leu Asp Thr Val Leu Lys Leu Val Glu Val Val
275 280 285

Asp Thr Asp Asn Asn Phe Pro Arg Leu Arg Ala Gly Val Ala Ser Gly
290 295 300

Met Ala Val Ser Arg Ala Gly Asp Trp Phe Gly Ser Pro Val Asn Val
305 310 315 320

Ala Ser Arg Val Thr Gly Val Ala Arg Pro Gly Ala Val Leu Val Ala
325 330 335

Asp Ser Val Arg Glu Ala Leu Gly Asp Ala Pro Glu Ala Asp Gly Phe
340 345 350

Gln Trp Ser Phe Ala Gly Pro Arg Arg Leu Arg Gly Ile Arg Gly Asp
355 360 365

Val Arg Leu Phe Arg Val Arg Arg Gly Ala Thr Arg Thr Gly Ser Gly
370 375 380

Gly Ala Ala Gln Asp Asp Asp Leu Ala Gly Ser Ser Pro
385 390 395

<210> 8
<211> 446
<212> PRT
<213> Mycobacterium tuberculosis

<400> 8

Met Val Glu Pro Gly Asn Leu Ala Gly Ala Thr Gly Ala Glu Trp Ile
1 5 10 15

Gly Arg Pro Pro His Glu Glu Leu Gln Arg Lys Val Arg Pro Leu Leu
20 25 30

Pro Ser Asp Asp Pro Phe Tyr Phe Pro Pro Ala Gly Tyr Gln His Ala
35 40 45

Val Pro Gly Thr Val Leu Arg Ser Arg Asp Val Glu Leu Ala Phe Met
50 55 60

Gly Leu Ile Pro Gln Pro Val Thr Ala Thr Gln Leu Leu Tyr Arg Thr
 65 70 75 80

Thr Asn Met Tyr Gly Asn Pro Glu Ala Thr Val Thr Thr Val Ile Val
 85 90 95

Pro Ala Glu Leu Ala Pro Gly Gln Thr Cys Pro Leu Leu Ser Tyr Gln
 100 105 110

Cys Ala Ile Asp Ala Met Ser Ser Arg Cys Phe Pro Ser Tyr Ala Leu
 115 120 125

Arg Arg Arg Ala Lys Ala Leu Gly Ser Leu Thr Gln Met Glu Leu Leu
 130 135 140

Met Ile Ser Ala Ala Leu Ala Glu Gly Trp Ala Val Ser Val Pro Asp
 145 150 155 160

His Glu Gly Pro Lys Gly Leu Trp Gly Ser Pro Tyr Glu Pro Gly Tyr
 165 170 175

Arg Val Leu Asp Gly Ile Arg Ala Ala Leu Asn Ser Glu Arg Val Gly
 180 185 190

Leu Ser Pro Ala Thr Pro Ile Gly Leu Trp Gly Tyr Ser Gly Gly Gly
 195 200 205

Leu Ala Ser Ala Trp Ala Ala Glu Ala Cys Gly Glu Tyr Ala Pro Asp
 210 215 220

Leu Asp Ile Val Gly Ala Val Leu Gly Ser Pro Val Gly Asp Leu Gly
 225 230 235 240

His Thr Phe Arg Arg Leu Asn Gly Thr Leu Leu Ala Gly Leu Pro Ala
 245 250 255

Leu Val Val Ala Ala Leu Gln His Ser Tyr Pro Gly Leu Ala Arg Val
 260 265 270

Ile Lys Glu His Ala Asn Asp Glu Gly Arg Gln Leu Leu Glu Gln Leu
 275 280 285

Thr Glu Met Thr Thr Val Asp Ala Val Ile Arg Met Ala Gly Arg Asp
 290 295 300

Met Gly Asp Phe Leu Asp Glu Pro Leu Glu Asp Ile Leu Ser Thr Pro
 305 310 315 320

Glu Ile Ser His Val Phe Gly Asp Thr Lys Leu Gly Ser Ala Val Pro
 325 330 335

Thr Pro Pro Val Leu Ile Val Gln Ala Val His Asp Tyr Leu Ile Asp
 340 345 350

Val Ser Asp Ile Asp Ala Leu Ala Asp Ser Tyr Thr Ala Gly Gly Ala
 355 360 365

Asn Val Thr Tyr His Arg Asp Leu Phe Ser Glu His Val Ser Leu His
 370 375 380

Pro Leu Ser Ala Pro Met Thr Leu Arg Trp Leu Thr Asp Arg Phe Ala
 385 390 395 400

Gly Lys Pro Leu Thr Asp His Arg Val Arg Thr Thr Trp Pro Thr Ile
 405 410 415

Phe Asn Pro Met Thr Tyr Ala Gly Met Ala Arg Leu Ala Val Ile Ala
 420 425 430

Ala Lys Val Ile Thr Gly Arg Lys Leu Ser Arg Arg Pro Leu
 435 440 445

<210> 9
 <211> 210
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 9

Met Ile Ala Thr Thr Arg Asp Arg Glu Gly Ala Thr Met Ile Thr Phe
 1 5 10 15

Arg Leu Arg Leu Pro Cys Arg Thr Ile Leu Arg Val Phe Ser Arg Asn
 20 25 30

Pro Leu Val Arg Gly Thr Asp Arg Leu Glu Ala Val Val Met Leu Leu
 35 40 45

Ala Val Thr Val Ser Leu Leu Thr Ile Pro Phe Ala Ala Ala Ala Gly
 50 55 60

Thr Ala Val Gln Asp Ser Arg Ser His Val Tyr Ala His Gln Ala Gln
 65 70 75 80

Thr Arg His Pro Ala Thr Ala Thr Val Ile Asp His Glu Gly Val Ile
85 90 95

Asp Ser Asn Thr Thr Ala Thr Ser Ala Pro Pro Arg Thr Lys Ile Thr
100 105 110

Val Pro Ala Arg Trp Val Val Asn Gly Ile Glu Arg Ser Gly Glu Val
115 120 125

Asn Ala Lys Pro Gly Thr Lys Ser Gly Asp Arg Val Gly Ile Trp Val
130 135 140

Asp Ser Ala Gly Gln Leu Val Asp Glu Pro Ala Pro Pro Ala Arg Ala
145 150 155 160

Ile Ala Asp Ala Ala Leu Ala Ala Leu Gly Leu Trp Leu Ser Val Ala
165 170 175

Ala Val Ala Gly Ala Leu Leu Ala Leu Thr Arg Ala Ile Leu Ile Arg
180 185 190

Val Arg Asn Ala Ser Trp Gln His Asp Ile Asp Ser Leu Phe Cys Thr
195 200 205

Gln Arg
210

<210> 10
<211> 80
<212> PRT
<213> Mycobacterium tuberculosis

<400> 10

Met Thr Asn Val Gly Asp Gln Gly Val Asp Ala Val Phe Gly Val Ile
1 5 10 15

Tyr Pro Pro Gln Val Ala Leu Val Ser Phe Gly Lys Pro Ala Gln Arg
20 25 30

Val Cys Ala Val Asp Gly Ala Ile His Val Met Thr Thr Val Leu Ala
35 40 45

Thr Leu Pro Ala Asp His Gly Cys Ser Asp Asp His Arg Gly Ala Leu
50 55 60

Phe Phe Leu Ser Ile Asn Glu Leu Thr Arg Cys Ala Ala Val Thr Gly
65 70 75 80

<210> 11
<211> 652
<212> PRT
<213> Mycobacterium tuberculosis

<400> 11

Val Thr Val Thr Pro Arg Thr Gly Ser Arg Ile Glu Glu Leu Leu Ala
1 5 10 15

Arg Ser Gly Arg Phe Phe Ile Pro Gly Glu Ile Ser Ala Asp Leu Arg
20 25 30

Thr Val Thr Arg Arg Gly Gly Arg Asp Gly Asp Val Phe Tyr Arg Asp
35 40 45

Arg Trp Ser His Asp Lys Val Val Arg Ser Thr His Gly Val Asn Cys
50 55 60

Thr Gly Ser Cys Ser Trp Lys Ile Tyr Val Lys Asp Asp Ile Ile Thr
65 70 75 80

Trp Glu Thr Gln Glu Thr Asp Tyr Pro Ser Val Gly Pro Asp Arg Pro
85 90 95

Glu Tyr Glu Pro Arg Gly Cys Pro Arg Gly Ala Ala Phe Ser Trp Tyr
100 105 110

Thr Tyr Ser Pro Thr Arg Val Arg His Pro Tyr Ala Arg Gly Val Leu
115 120 125

Val Glu Met Tyr Arg Glu Ala Lys Ala Arg Leu Gly Asp Pro Val Ala
130 135 140

Ala Trp Ala Asp Ile Gln Ala Asp Pro Arg Arg Arg Arg Arg Tyr Gln
145 150 155 160

Arg Ala Arg Gly Lys Gly Gly Leu Val Arg Val Ser Trp Ala Glu Ala
165 170 175

Thr Glu Met Ile Ala Ala Ala His Val His Thr Ile Ser Thr Tyr Gly
180 185 190

Pro Asp Arg Val Ala Gly Phe Ser Pro Ile Pro Ala Met Ser Met Val
195 200 205

Ser His Ala Ala Gly Ser Arg Phe Val Glu Leu Ile Gly Gly Val Met
 210 215 220

Thr Ser Phe Tyr Asp Trp Tyr Ala Asp Leu Pro Val Ala Ser Pro Gln
 225 230 235 240

Val Phe Gly Asp Gln Thr Asp Val Pro Glu Ser Gly Asp Trp Trp Asp
 245 250 255

Val Val Trp Gln Cys Ala Ser Val Leu Leu Thr Tyr Pro Asn Ser Arg
 260 265 270

Gln Leu Gly Thr Ala Glu Glu Leu Leu Ala His Ile Asp Gly Pro Ala
 275 280 285

Ala Asp Leu Leu Gly Arg Thr Val Ser Glu Leu Arg Arg Ala Asp Pro
 290 295 300

Leu Thr Ala Ala Thr Arg Tyr Val Asp Thr Phe Asp Leu Arg Gly Arg
 305 310 315 320

Ala Thr Leu Tyr Leu Thr Tyr Trp Thr Ala Gly Asp Thr Arg Asn Arg
 325 330 335

Gly Arg Glu Met Leu Ala Phe Ala Gln Thr Tyr Arg Ser Thr Asp Val
 340 345 350

Ala Pro Pro Arg Gly Glu Thr Pro Asp Phe Leu Pro Val Val Leu Glu
 355 360 365

Phe Ala Ala Thr Val Asp Pro Glu Ala Gly Arg Arg Leu Leu Ser Gly
 370 375 380

Tyr Arg Val Pro Ile Ala Ala Leu Cys Asn Ala Leu Thr Glu Ala Ala
 385 390 395 400

Leu Pro Tyr Ala His Thr Val Ala Ala Val Cys Arg Thr Gly Asp Met
 405 410 415

Met Gly Glu Leu Phe Trp Thr Val Val Pro Tyr Val Thr Met Thr Ile
 420 425 430

Val Ala Val Gly Ser Trp Trp Arg Tyr Arg Tyr Asp Lys Phe Gly Trp
 435 440 445

Thr Thr Arg Ser Ser Gln Leu Tyr Glu Ser Arg Leu Leu Arg Ile Ala
 450 455 460

Ser Pro Met Phe His Phe Gly Ile Leu Val Val Ile Val Gly His Gly
 465 470 475 480

Ile Gly Leu Val Ile Pro Gln Ser Trp Thr Gln Ala Ala Gly Leu Ser
 485 490 495

Glu Gly Ala Tyr His Val Gln Ala Val Val Leu Gly Ser Ile Ala Gly
 500 505 510

Ile Thr Thr Leu Ala Gly Val Thr Leu Leu Ile Tyr Arg Arg Arg Thr
 515 520 525

Arg Gly Pro Val Phe Met Ala Thr Thr Val Asn Asp Lys Val Met Tyr
 530 535 540

Leu Val Leu Val Ala Ala Ile Val Ala Gly Leu Gly Ala Thr Ala Leu
 545 550 555 560

Gly Ser Gly Val Val Gly Glu Ala Tyr Asn Tyr Arg Glu Thr Val Ser
 565 570 575

Val Trp Phe Arg Ser Val Trp Val Leu Gln Pro Arg Gly Asp Leu Met
 580 585 590

Ala Glu Ala Pro Leu Tyr Tyr Gln Ile His Val Leu Ile Gly Leu Ala
 595 600 605

Leu Phe Ala Leu Trp Pro Phe Thr Arg Leu Val His Ala Phe Ser Ala
 610 615 620

Pro Ile Gly Tyr Leu Phe Arg Pro Tyr Ile Ile Tyr Arg Ser Arg Glu
 625 630 635 640

Glu Leu Val Leu Thr Arg Pro Arg Arg Arg Gly Trp
 645 650

<210> 12
 <211> 395
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 12

Met Arg Gly Gln Ala Ala Asn Leu Val Leu Ala Thr Trp Ile Ser Val
 1 5 10 15

Val Asn Phe Trp Ala Trp Asn Leu Ile Gly Pro Leu Ser Thr Ser Tyr
20 25 30

Ala Arg Asp Met Ser Leu Ser Ser Ala Glu Ala Ser Leu Leu Val Ala
35 40 45

Thr Pro Ile Leu Val Gly Ala Leu Gly Arg Ile Val Thr Gly Pro Leu
50 55 60

Thr Asp Arg Phe Gly Gly Arg Ala Met Leu Ile Ala Val Thr Leu Ala
65 70 75 80

Ser Ile Leu Pro Val Leu Ala Val Gly Val Ala Ala Thr Met Gly Ser
85 90 95

Tyr Ala Leu Leu Val Phe Phe Gly Leu Phe Leu Gly Val Ala Gly Thr
100 105 110

Ile Phe Ala Val Gly Ile Pro Phe Ala Asn Asn Trp Tyr Gln Pro Ala
115 120 125

Arg Arg Gly Phe Ser Thr Gly Val Phe Gly Met Gly Met Val Gly Thr
130 135 140

Ala Leu Ser Ala Phe Phe Thr Pro Arg Phe Val Arg Trp Phe Gly Leu
145 150 155 160

Phe Thr Thr His Ala Ile Val Ala Ala Ala Leu Ala Ser Thr Ala Val
165 170 175

Val Ala Met Val Val Leu Arg Asp Ala Pro Tyr Phe Arg Pro Asn Ala
180 185 190

Asp Pro Val Leu Pro Arg Leu Lys Ala Ala Ala Arg Leu Pro Val Thr
195 200 205

Trp Glu Met Ser Phe Leu Tyr Ala Ile Val Phe Gly Gly Phe Val Ala
210 215 220

Phe Ser Asn Tyr Leu Pro Thr Tyr Ile Thr Thr Ile Tyr Gly Phe Ser
225 230 235 240

Thr Val Asp Ala Gly Ala Arg Thr Ala Gly Phe Ala Leu Ala Ala Val
245 250 255

Leu Ala Arg Pro Val Gly Gly Trp Leu Ser Asp Arg Ile Ala Pro Arg
260 265 270

His Val Val Leu Ala Ser Leu Ala Gly Thr Ala Leu Leu Ala Phe Ala
275 280 285

Ala Ala Leu Gln Pro Pro Pro Glu Val Trp Ser Ala Ala Thr Phe Ile
290 295 300

Thr Leu Ala Val Cys Leu Gly Val Gly Thr Gly Gly Val Phe Ala Trp
305 310 315 320

Val Ala Arg Arg Ala Pro Ala Ala Ser Val Gly Ser Val Thr Gly Ile
325 330 335

Val Ala Ala Ala Gly Gly Leu Gly Gly Tyr Phe Pro Pro Leu Val Met
340 345 350

Gly Ala Thr Tyr Asp Pro Val Asp Asn Asp Tyr Thr Val Gly Leu Leu
355 360 365

Leu Leu Val Ala Thr Ala Leu Val Ala Cys Thr Tyr Thr Ala Leu His
370 375 380

Ala Arg Glu Pro Val Ser Glu Glu Ala Ser Arg
385 390 395

<210> 13
<211> 94
<212> PRT
<213> Mycobacterium tuberculosis

<400> 13

Met Cys Gly Asp Gln Ser Asp His Val Leu Gln His Trp Thr Val Asp
1 5 10 15

Ile Ser Ile Asp Glu His Glu Gly Leu Thr Arg Ala Lys Ala Arg Leu
20 25 30

Arg Trp Arg Glu Lys Glu Leu Val Gly Val Gly Leu Ala Arg Leu Asn
35 40 45

Pro Ala Asp Arg Asn Val Pro Glu Ile Gly Asp Glu Leu Ser Val Ala
50 55 60

Arg Ala Leu Ser Asp Leu Gly Lys Arg Met Leu Lys Val Ser Thr His
65 70 75 80

Asp Ile Glu Ala Val Thr His Gln Pro Ala Arg Leu Leu Tyr
85 90

<210> 14
<211> 560
<212> PRT
<213> Mycobacterium tuberculosis

<400> 14

Met Ile Pro Thr Met Thr Ser Ala Gly Trp Ala Pro Gly Val Val Gln
1 5 10 15

Phe Arg Glu Tyr Gln Arg Arg Trp Leu Arg Gly Asp Val Leu Ala Gly
20 25 30

Leu Thr Val Ala Ala Tyr Leu Ile Pro Gln Ala Met Ala Tyr Ala Thr
35 40 45

Val Ala Gly Leu Pro Pro Ala Ala Gly Leu Trp Ala Ser Ile Ala Pro
50 55 60

Leu Ala Ile Tyr Ala Leu Leu Gly Ser Ser Arg Gln Leu Ser Ile Gly
65 70 75 80

Pro Glu Ser Ala Thr Ala Leu Met Thr Ala Ala Val Leu Ala Pro Met
85 90 95

Ala Ala Gly Asp Leu Arg Arg Tyr Ala Val Leu Ala Ala Thr Leu Gly
100 105 110

Leu Leu Val Gly Leu Ile Cys Leu Leu Ala Gly Thr Ala Arg Leu Gly
115 120 125

Phe Leu Ala Ser Leu Arg Ser Arg Pro Val Leu Val Gly Tyr Met Ala
130 135 140

Gly Ile Ala Leu Val Met Ile Ser Ser Gln Leu Gly Thr Ile Thr Gly
145 150 155 160

Thr Ser Val Glu Gly Asn Glu Phe Phe Ser Glu Val His Ser Phe Ala
165 170 175

Thr Ser Val Thr Arg Val His Trp Pro Thr Phe Val Leu Ala Met Ser
180 185 190

Val Leu Ala Leu Leu Thr Met Leu Thr Arg Trp Ala Pro Arg Ala Pro
 195 200 205

Gly Pro Ile Ile Ala Val Leu Ala Ala Thr Met Leu Val Ala Val Met
 210 215 220

Ser Leu Asp Ala Lys Gly Ile Ala Ile Val Gly Arg Ile Pro Ser Gly
 225 230 235 240

Leu Pro Thr Pro Gly Val Pro Pro Val Ser Val Glu Asp Leu Arg Ala
 245 250 255

Leu Ile Ile Pro Ala Ala Gly Ile Ala Ile Val Thr Phe Thr Asp Gly
 260 265 270

Val Leu Thr Ala Arg Ala Phe Ala Ala Arg Arg Gly Gln Glu Val Asn
 275 280 285

Ala Asn Ala Glu Leu Arg Ala Val Gly Ala Cys Asn Ile Ala Ala Gly
 290 295 300

Leu Thr His Gly Phe Pro Val Ser Ser Ser Ser Ser Arg Thr Ala Leu
 305 310 315 320

Ala Asp Val Val Gly Gly Arg Thr Gln Leu Tyr Ser Leu Ile Ala Leu
 325 330 335

Gly Leu Val Val Ile Val Met Val Phe Ala Ser Gly Leu Leu Ala Met
 340 345 350

Phe Pro Ile Ala Ala Leu Gly Ala Leu Val Val Tyr Ala Ala Leu Arg
 355 360 365

Leu Ile Asp Leu Ser Glu Phe Arg Arg Leu Ala Arg Phe Arg Arg Ser
 370 375 380

Glu Leu Met Leu Ala Leu Ala Thr Thr Ala Ala Val Leu Gly Leu Gly
 385 390 395 400

Val Phe Tyr Gly Val Leu Ala Ala Val Ala Leu Ser Ile Leu Glu Leu
 405 410 415

Leu Arg Arg Val Ala His Pro His Asp Ser Val Leu Gly Phe Val Pro
 420 425 430

Gly Ile Ala Gly Met His Asp Ile Asp Asp Tyr Pro Gln Ala Lys Arg
435 440 445

Val Pro Gly Leu Val Val Tyr Arg Tyr Asp Ala Pro Leu Cys Phe Ala
450 455 460

Asn Ala Glu Asp Phe Arg Arg Arg Ala Leu Thr Val Val Asp Gln Asp
465 470 475 480

Pro Gly Gln Val Glu Trp Phe Val Leu Asn Ala Glu Ser Asn Val Glu
485 490 495

Val Asp Leu Thr Ala Leu Asp Ala Leu Asp Gln Leu Arg Thr Glu Leu
500 505 510

Leu Arg Arg Gly Ile Val Phe Ala Met Ala Arg Val Lys Gln Asp Leu
515 520 525

Arg Glu Ser Leu Arg Ala Ala Ser Leu Leu Asp Lys Ile Gly Glu Asp
530 535 540

His Ile Phe Met Thr Leu Pro Thr Ala Val Gln Ala Phe Arg Arg Arg
545 550 555 560

<210> 15
<211> 143
<212> PRT
<213> Mycobacterium tuberculosis

<400> 15

Met Ile Thr Asn Leu Arg Arg Arg Thr Ala Met Ala Ala Ala Gly Leu
1 5 10 15

Gly Ala Ala Leu Gly Leu Gly Ile Leu Leu Val Pro Thr Val Asp Ala
20 25 30

His Leu Ala Asn Gly Ser Met Ser Glu Val Met Met Ser Glu Ile Ala
35 40 45

Gly Leu Pro Ile Pro Pro Ile Ile His Tyr Gly Ala Ile Ala Tyr Ala
50 55 60

Pro Ser Gly Ala Ser Gly Lys Ala Trp His Gln Arg Thr Pro Ala Arg
65 70 75 80

Ala Glu Gln Val Ala Leu Glu Lys Cys Gly Asp Lys Thr Cys Lys Val
85 90 95

Val Ser Arg Phe Thr Arg Cys Gly Ala Val Ala Tyr Asn Gly Ser Lys
100 105 110

Tyr Gln Gly Gly Thr Gly Leu Thr Arg Arg Ala Ala Glu Asp Asp Ala
115 120 125

Val Asn Arg Leu Glu Gly Gly Arg Ile Val Asn Trp Ala Cys Asn
130 135 140

<210> 16
<211> 905
<212> PRT
<213> Mycobacterium tuberculosis

<400> 16

Leu Ser Ala Ser Val Ser Ala Thr Thr Ala His His Gly Leu Pro Ala
1 5 10 15

His Glu Val Val Leu Leu Leu Glu Ser Asp Pro Tyr His Gly Leu Ser
20 25 30

Asp Gly Glu Ala Ala Gln Arg Leu Glu Arg Phe Gly Pro Asn Thr Leu
35 40 45

Ala Val Val Thr Arg Ala Ser Leu Leu Ala Arg Ile Leu Arg Gln Phe
50 55 60

His His Pro Leu Ile Tyr Val Leu Leu Val Ala Gly Thr Ile Thr Ala
65 70 75 80

Gly Leu Lys Glu Phe Val Asp Ala Ala Val Ile Phe Gly Val Val Val
85 90 95

Ile Asn Ala Ile Val Gly Phe Ile Gln Glu Ser Lys Ala Glu Ala Ala
100 105 110

Leu Gln Gly Leu Arg Ser Met Val His Thr His Ala Lys Val Val Arg
115 120 125

Glu Gly His Glu His Thr Met Pro Ser Glu Glu Leu Val Pro Gly Asp
130 135 140

Leu Val Leu Leu Ala Ala Gly Asp Lys Val Pro Ala Asp Leu Arg Leu
145 150 155 160

Val Arg Gln Thr Gly Leu Ser Val Asn Glu Ser Ala Leu Thr Gly Glu
 165 170 175

Ser Thr Pro Val His Lys Asp Glu Val Ala Leu Pro Glu Gly Thr Pro
 180 185 190

Val Ala Asp Arg Arg Asn Ile Ala Tyr Ser Gly Thr Leu Val Thr Ala
 195 200 205

Gly His Gly Ala Gly Ile Val Val Ala Thr Gly Ala Glu Thr Glu Leu
 210 215 220

Gly Glu Ile His Arg Leu Val Gly Ala Ala Glu Val Val Ala Thr Pro
 225 230 235 240

Leu Thr Ala Lys Leu Ala Trp Phe Ser Lys Phe Leu Thr Ile Ala Ile
 245 250 255

Leu Gly Leu Ala Ala Leu Thr Phe Gly Val Gly Leu Leu Arg Arg Gln
 260 265 270

Asp Ala Val Glu Thr Phe Thr Ala Ala Ile Ala Leu Ala Val Gly Ala
 275 280 285

Ile Pro Glu Gly Leu Pro Thr Ala Val Thr Ile Thr Leu Ala Ile Gly
 290 295 300

Met Ala Arg Met Ala Lys Arg Arg Ala Val Ile Arg Arg Leu Pro Ala
 305 310 315 320

Val Glu Thr Leu Gly Ser Thr Thr Val Ile Cys Ala Asp Lys Thr Gly
 325 330 335

Thr Leu Thr Glu Asn Gln Met Thr Val Gln Ser Ile Trp Thr Pro His
 340 345 350

Gly Glu Ile Arg Ala Thr Gly Thr Gly Tyr Ala Pro Asp Val Leu Leu
 355 360 365

Cys Asp Thr Asp Asp Ala Pro Val Pro Val Asn Ala Asn Ala Ala Leu
 370 375 380

Arg Trp Ser Leu Leu Ala Gly Ala Cys Ser Asn Asp Ala Ala Leu Val
 385 390 395 400

Arg Asp Gly Thr Arg Trp Gln Ile Val Gly Asp Pro Thr Glu Gly Ala
 405 410 415

Met Leu Val Val Ala Ala Lys Ala Gly Phe Asn Pro Glu Arg Leu Ala
 420 425 430

Thr Thr Leu Pro Gln Val Ala Ala Ile Pro Phe Ser Ser Glu Arg Gln
 435 440 445

Tyr Met Ala Thr Leu His Arg Asp Gly Thr Asp His Val Val Leu Ala
 450 455 460

Lys Gly Ala Val Glu Arg Met Leu Asp Leu Cys Gly Thr Glu Met Gly
 465 470 475 480

Ala Asp Gly Ala Leu Arg Pro Leu Asp Arg Ala Thr Val Leu Arg Ala
 485 490 495

Thr Glu Met Leu Thr Ser Arg Gly Leu Arg Val Leu Ala Thr Gly Met
 500 505 510

Gly Ala Gly Ala Gly Thr Pro Asp Asp Phe Asp Glu Asn Val Ile Pro
 515 520 525

Gly Ser Leu Ala Leu Thr Gly Leu Gln Ala Met Ser Asp Pro Pro Arg
 530 535 540

Ala Ala Ala Ala Ser Ala Val Ala Ala Cys His Ser Ala Gly Ile Ala
 545 550 555 560

Val Lys Met Ile Thr Gly Asp His Ala Gly Thr Ala Thr Ala Ile Ala
 565 570 575

Thr Glu Val Gly Leu Leu Asp Asn Thr Glu Pro Ala Ala Gly Ser Val
 580 585 590

Leu Thr Gly Ala Glu Leu Ala Ala Leu Ser Ala Asp Gln Tyr Pro Glu
 595 600 605

Ala Val Asp Thr Ala Ser Val Phe Ala Arg Val Ser Pro Glu Gln Lys
 610 615 620

Leu Arg Leu Val Gln Ala Leu Gln Ala Arg Gly His Val Val Ala Met
 625 630 635 640

Thr Gly Asp Gly Val Asn Asp Ala Pro Ala Leu Arg Gln Ala Asn Ile
 645 650 655

Gly Val Ala Met Gly Arg Gly Gly Thr Glu Val Ala Lys Asp Ala Ala
 660 665 670

Asp Met Val Leu Thr Asp Asp Asp Phe Ala Thr Ile Glu Ala Ala Val
 675 680 685

Glu Glu Gly Arg Gly Val Phe Asp Asn Leu Thr Lys Phe Ile Thr Trp
 690 695 700

Thr Leu Pro Thr Asn Leu Gly Glu Gly Leu Val Ile Leu Ala Ala Ile
 705 710 715 720

Ala Val Gly Val Ala Leu Pro Ile Leu Pro Thr Gln Ile Leu Trp Ile
 725 730 735

Asn Met Thr Thr Ala Ile Ala Leu Gly Leu Met Leu Ala Phe Glu Pro
 740 745 750

Lys Glu Ala Gly Ile Met Thr Arg Pro Pro Arg Asp Pro Asp Gln Pro
 755 760 765

Leu Leu Thr Gly Trp Leu Val Arg Arg Thr Leu Leu Val Ser Thr Leu
 770 775 780

Leu Val Ala Ser Ala Trp Trp Leu Phe Ala Trp Glu Leu Asp Asn Gly
 785 790 795 800

Ala Gly Leu His Glu Ala Arg Thr Ala Ala Leu Asn Leu Phe Val Val
 805 810 815

Val Glu Ala Phe Tyr Leu Phe Ser Cys Arg Ser Leu Thr Arg Ser Ala
 820 825 830

Trp Arg Leu Gly Met Phe Ala Asn Arg Trp Ile Ile Leu Gly Val Ser
 835 840 845

Ala Gln Ala Ile Ala Gln Phe Ala Ile Thr Tyr Leu Pro Ala Met Asn
 850 855 860

Met Val Phe Asp Thr Ala Pro Ile Asp Ile Gly Val Trp Val Arg Ile
 865 870 875 880

Phe Ala Val Ala Thr Ala Ile Thr Ile Val Val Ala Thr Asp Thr Leu
885 890 895

Leu Pro Arg Ile Arg Ala Gln Pro Pro
900 905

<210> 17
<211> 258
<212> PRT
<213> Mycobacterium tuberculosis

<400> 17

Met Ser Phe His Asp Leu His His Gln Gly Val Pro Phe Val Leu Pro
1 5 10 15

Asn Ala Trp Asp Val Pro Ser Ala Leu Ala Tyr Leu Ala Glu Gly Phe
20 25 30

Thr Ala Ile Gly Thr Thr Ser Phe Gly Val Ser Ser Ser Gly Gly His
35 40 45

Pro Asp Gly His Arg Ala Thr Arg Gly Ala Asn Ile Ala Leu Ala Ala
50 55 60

Ala Leu Ala Pro Leu Gln Cys Tyr Val Ser Val Asp Ile Glu Asp Gly
65 70 75 80

Tyr Ser Asp Glu Pro Asp Ala Ile Ala Asp Tyr Val Ala Gln Leu Ser
85 90 95

Thr Ala Gly Ile Asn Ile Glu Asp Ser Ser Ala Glu Lys Leu Ile Asp
100 105 110

Pro Ala Leu Ala Ala Ala Lys Ile Val Ala Ile Lys Gln Arg Asn Pro
115 120 125

Glu Val Phe Val Asn Ala Arg Val Asp Thr Tyr Trp Leu Arg Gln His
130 135 140

Ala Asp Thr Thr Ser Thr Ile Gln Arg Ala Leu Arg Tyr Val Asp Ala
145 150 155 160

Gly Ala Asp Gly Val Phe Val Pro Leu Ala Asn Asp Pro Asp Glu Leu
165 170 175

Ala Glu Leu Thr Arg Asn Ile Pro Cys Pro Val Asn Thr Leu Pro Val
180 185 190

Pro Gly Leu Thr Ile Ala Asp Leu Gly Glu Leu Gly Val Ala Arg Val
 195 200 205

Ser Thr Gly Ser Val Pro Tyr Ser Ala Gly Leu Tyr Ala Ala Ala His
 210 215 220

Ala Ala Arg Ala Val Ser Asp Gly Glu Gln Leu Pro Arg Ser Val Pro
 225 230 235 240

Tyr Ala Glu Leu Gln Ala Arg Leu Val Asp Tyr Glu Asn Arg Thr Ser
 245 250 255

Thr Thr

<210> 18
 <211> 285
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 18

Val Val Lys Arg Ser Arg Ala Thr Arg Leu Ser Pro Ser Ile Trp Ser
 1 5 10 15

Gly Trp Glu Ser Pro Gln Cys Arg Ser Ile Arg Ala Arg Leu Leu Leu
 20 25 30

Pro Arg Gly Arg Ser Arg Pro Pro Asn Ala Asp Cys Cys Trp Asn Gln
 35 40 45

Leu Ala Val Thr Pro Asp Thr Arg Met Pro Ala Ser Ser Ala Ala Gly
 50 55 60

Arg Asp Ala Ala Ala Tyr Asp Ala Trp Tyr Asp Ser Pro Thr Gly Arg
 65 70 75 80

Pro Ile Leu Ala Thr Glu Val Ala Ala Leu Arg Pro Leu Ile Glu Val
 85 90 95

Phe Ala Gln Pro Arg Leu Glu Ile Gly Val Gly Thr Gly Arg Phe Ala
 100 105 110

Asp Leu Leu Gly Val Arg Phe Gly Leu Asp Pro Ser Arg Asp Ala Leu
 115 120 125

Met Phe Ala Arg Arg Arg Gly Val Leu Val Ala Asn Ala Val Gly Glu
 130 135 140

Ala Val Pro Phe Val Ser Arg His Phe Gly Ala Val Leu Met Ala Phe
 145 150 155 160

Thr Leu Cys Phe Val Thr Asp Pro Ala Ala Ile Phe Arg Glu Thr Arg
 165 170 175

Arg Leu Leu Ala Asp Gly Gly Gly Leu Val Ile Gly Phe Leu Pro Arg
 180 185 190

Gly Thr Pro Trp Ala Asp Leu Tyr Ala Leu Arg Ala Ala Arg Gly Gln
 195 200 205

Pro Gly Tyr Arg Asp Ala Arg Phe Tyr Thr Ala Ala Glu Leu Glu Gln
 210 215 220

Leu Leu Ala Asp Ser Gly Phe Arg Val Ile Ala Arg Arg Cys Thr Leu
 225 230 235 240

His Gln Pro Pro Gly Leu Ala Arg Tyr Asp Ile Glu Ala Ala His Asp
 245 250 255

Gly Ile Gln Ala Gly Ala Gly Phe Val Ala Ile Ser Ala Val Asp Gln
 260 265 270

Ala His Glu Pro Lys Asp Asp His Pro Leu Glu Ser Glu
 275 280 285

<210> 19
 <211> 285
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 19

Val Val Lys Arg Ser Arg Ala Thr Arg Leu Ser Pro Ser Ile Trp Ser
 1 5 10 15

Gly Trp Glu Ser Pro Gln Cys Arg Ser Ile Arg Ala Arg Leu Leu Leu
 20 25 30

Pro Arg Gly Arg Ser Arg Pro Pro Asn Ala Asp Cys Cys Trp Asn Gln
 35 40 45

Leu Ala Val Thr Pro Asp Thr Arg Met Pro Ala Ser Ser Ala Ala Gly
 50 55 60

Arg Asp Ala Ala Ala Tyr Asp Ala Trp Tyr Asp Ser Pro Thr Gly Arg
65 70 75 80

Pro Ile Leu Ala Thr Glu Val Ala Ala Leu Arg Pro Leu Ile Glu Val
85 90 95

Phe Ala Gln Pro Arg Leu Glu Ile Gly Val Gly Thr Gly Arg Phe Ala
100 105 110

Asp Leu Leu Gly Val Arg Phe Gly Leu Asp Pro Ser Arg Asp Ala Leu
115 120 125

Met Phe Ala Arg Arg Arg Gly Val Leu Val Ala Asn Ala Val Gly Glu
130 135 140

Ala Val Pro Phe Val Ser Arg His Phe Gly Ala Val Leu Met Ala Phe
145 150 155 160

Thr Leu Cys Phe Val Thr Asp Pro Ala Ala Ile Phe Arg Glu Thr Arg
165 170 175

Arg Leu Leu Ala Asp Gly Gly Gly Leu Val Ile Gly Phe Leu Pro Arg
180 185 190

Gly Thr Pro Trp Ala Asp Leu Tyr Ala Leu Arg Ala Ala Arg Gly Gln
195 200 205

Pro Gly Tyr Arg Asp Ala Arg Phe Tyr Thr Ala Ala Glu Leu Glu Gln
210 215 220

Leu Leu Ala Asp Ser Gly Phe Arg Val Ile Ala Arg Arg Cys Thr Leu
225 230 235 240

His Gln Pro Pro Gly Leu Ala Arg Tyr Asp Ile Glu Ala Ala His Asp
245 250 255

Gly Ile Gln Ala Gly Ala Gly Phe Val Ala Ile Ser Ala Val Asp Gln
260 265 270

Ala His Glu Pro Lys Asp Asp His Pro Leu Glu Ser Glu
275 280 285

<210> 20

<211> 114

<212> PRT

<213> Mycobacterium tuberculosis

<400> 20

Val Thr Tyr Val Ile Gly Ser Glu Cys Val Asp Val Met Asp Lys Ser
1 5 10 15

Cys Val Gln Glu Cys Pro Val Asp Cys Ile Tyr Glu Gly Ala Arg Met
20 25 30

Leu Tyr Ile Asn Pro Asp Glu Cys Val Asp Cys Gly Ala Cys Lys Pro
35 40 45

Ala Cys Arg Val Glu Ala Ile Tyr Trp Glu Gly Asp Leu Pro Asp Asp
50 55 60

Gln His Gln His Leu Gly Asp Asn Ala Ala Phe Phe His Gln Val Leu
65 70 75 80

Pro Gly Arg Val Ala Pro Leu Gly Ser Pro Gly Gly Ala Ala Ala Val
85 90 95

Gly Pro Ile Gly Val Asp Thr Pro Leu Val Ala Ala Ile Pro Val Glu
100 105 110

Cys Pro

<210> 21

<211> 279

<212> PRT

<213> Mycobacterium tuberculosis

<400> 21

Met Asn Gln Ser His Lys Pro Pro Ser Ile Val Val Gly Ile Asp Gly
1 5 10 15

Ser Lys Pro Ala Val Gln Ala Ala Leu Trp Ala Val Asp Glu Ala Ala
20 25 30

Ser Arg Asp Ile Pro Leu Arg Leu Leu Tyr Ala Ile Glu Pro Asp Asp
35 40 45

Pro Gly Tyr Ala Ala His Gly Ala Ala Ala Arg Lys Leu Ala Ala Ala
50 55 60

Glu Asn Ala Val Arg Tyr Ala Phe Thr Ala Val Glu Ala Ala Asp Arg
65 70 75 80

Pro Val Lys Val Glu Val Glu Ile Thr Gln Glu Arg Pro Val Thr Ser
85 90 95

Leu Ile Arg Ala Ser Ala Ala Ala Ala Leu Val Cys Val Gly Ala Ile
100 105 110

Gly Val His His Phe Arg Pro Glu Arg Val Gly Ser Thr Ala Ala Ala
115 120 125

Leu Ala Leu Ser Ala Gln Cys Pro Val Ala Ile Val Arg Pro His Arg
130 135 140

Val Pro Ile Gly Arg Asp Ala Ala Trp Ile Val Val Glu Ala Asp Gly
145 150 155 160

Ser Ser Asp Ile Gly Val Leu Leu Gly Ala Val Met Ala Glu Ala Arg
165 170 175

Leu Arg Asp Ser Pro Val Arg Val Val Thr Cys Arg Gln Ser Gly Val
180 185 190

Gly Asp Thr Gly Asp Asp Val Arg Ala Ser Leu Asp Arg Trp Leu Ala
195 200 205

Arg Trp Gln Pro Arg Tyr Pro Asp Val Arg Val Gln Ser Ala Ala Val
210 215 220

His Gly Glu Leu Leu Asp Tyr Leu Ala Gly Leu Gly Arg Ser Val His
225 230 235 240

Met Val Val Leu Ser Ala Ser Asp Gln Glu His Val Glu Gln Leu Val
245 250 255

Gly Ala Pro Gly Asn Ala Val Leu Gln Glu Ala Gly Cys Thr Leu Leu
260 265 270

Val Val Gly Gln Gln Tyr Leu
275

<210> 22

<211> 339

<212> PRT

<213> Mycobacterium tuberculosis

<400> 22

Met Thr Glu Pro Ala Ala Trp Asp Glu Gly Lys Pro Arg Ile Ile Thr
1 5 10 15

Leu Thr Met Asn Pro Ala Leu Asp Ile Thr Thr Ser Val Asp Val Val
 20 25 30

Arg Pro Thr Glu Lys Met Arg Cys Gly Ala Pro Arg Tyr Asp Pro Gly
 35 40 45

Gly Gly Gly Ile Asn Val Ala Arg Ile Val His Val Leu Gly Gly Cys
 50 55 60

Ser Thr Ala Leu Phe Pro Ala Gly Gly Ser Thr Gly Ser Leu Leu Met
 65 70 75 80

Ala Leu Leu Gly Asp Ala Gly Val Pro Phe Arg Val Ile Pro Ile Ala
 85 90 95

Ala Ser Thr Arg Glu Ser Phe Thr Val Asn Glu Ser Arg Thr Ala Lys
 100 105 110

Gln Tyr Arg Phe Val Leu Pro Gly Pro Ser Leu Thr Val Ala Glu Gln
 115 120 125

Glu Gln Cys Leu Asp Glu Leu Arg Gly Ala Ala Ala Ser Ala Ala Phe
 130 135 140

Val Val Ala Ser Gly Ser Leu Pro Pro Gly Val Ala Ala Asp Tyr Tyr
 145 150 155 160

Gln Arg Val Ala Asp Ile Cys Arg Arg Ser Ser Thr Pro Leu Ile Leu
 165 170 175

Asp Thr Ser Gly Gly Gly Leu Gln His Ile Ser Ser Gly Val Phe Leu
 180 185 190

Leu Lys Ala Ser Val Arg Glu Leu Arg Glu Cys Val Gly Ser Glu Leu
 195 200 205

Leu Thr Glu Pro Glu Gln Leu Ala Ala Ala His Glu Leu Ile Asp Arg
 210 215 220

Gly Arg Ala Glu Val Val Val Val Ser Leu Gly Ser Gln Gly Ala Leu
 225 230 235 240

Leu Ala Thr Arg His Ala Ser His Arg Phe Ser Ser Ile Pro Met Thr
 245 250 255

Ala Val Ser Gly Val Gly Ala Gly Asp Ala Met Val Ala Ala Ile Thr
260 265 270

Val Gly Leu Ser Arg Gly Trp Ser Leu Ile Lys Ser Val Arg Leu Gly
275 280 285

Asn Ala Ala Gly Ala Ala Met Leu Leu Thr Pro Gly Thr Ala Ala Cys
290 295 300

Asn Arg Asp Asp Val Glu Arg Phe Phe Glu Leu Ala Ala Glu Pro Thr
305 310 315 320

Glu Val Gly Gln Asp Gln Tyr Val Trp His Pro Ile Val Asn Pro Glu
325 330 335

Ala Ser Pro

<210> 23
<211> 681
<212> PRT
<213> Mycobacterium tuberculosis

<400> 23

Val Leu Met Thr Ala Ala Ala Asp Val Thr Arg Arg Ser Pro Arg Arg
1 5 10 15

Val Phe Arg Asp Arg Arg Glu Ala Gly Arg Val Leu Ala Glu Leu Leu
20 25 30

Ala Ala Tyr Arg Asp Gln Pro Asp Val Ile Val Leu Gly Leu Ala Arg
35 40 45

Gly Gly Leu Pro Val Ala Trp Glu Val Ala Ala Ala Leu His Ala Pro
50 55 60

Leu Asp Ala Phe Val Val Arg Lys Leu Gly Ala Pro Gly His Asp Glu
65 70 75 80

Phe Ala Val Gly Ala Leu Ala Ser Gly Gly Arg Val Val Val Asn Asp
85 90 95

Asp Val Val Arg Gly Leu Arg Ile Thr Pro Gln Gln Leu Arg Asp Ile
100 105 110

Ala Glu Arg Glu Gly Arg Glu Leu Leu Arg Arg Glu Ser Ala Tyr Arg
115 120 125

Gly Glu Arg Pro Pro Thr Asp Ile Thr Gly Lys Thr Val Ile Val Val
 130 135 140

Asp Asp Gly Leu Ala Thr Gly Ala Ser Met Phe Ala Ala Val Gln Ala
 145 150 155 160

Leu Arg Asp Ala Gln Pro Ala Gln Ile Val Ile Ala Val Pro Ala Ala
 165 170 175

Pro Glu Ser Thr Cys Arg Glu Phe Ala Gly Leu Val Asp Asp Val Val
 180 185 190

Cys Ala Thr Met Pro Thr Pro Phe Leu Ala Val Gly Glu Ser Phe Trp
 195 200 205

Asp Phe Arg Gln Val Thr Asp Glu Glu Val Arg Arg Leu Leu Ala Thr
 210 215 220

Pro Thr Ala Gly Pro Ser Leu Arg Arg Pro Ala Ala Ser Thr Ala Ala
 225 230 235 240

Asp Val Leu Arg Arg Val Ala Ile Asp Ala Pro Gly Gly Val Pro Thr
 245 250 255

His Glu Val Leu Ala Glu Leu Val Gly Asp Ala Arg Ile Val Leu Ile
 260 265 270

Gly Glu Ser Ser His Gly Thr His Glu Phe Tyr Gln Ala Arg Ala Ala
 275 280 285

Met Thr Gln Trp Leu Ile Glu Glu Lys Gly Phe Gly Ala Val Ala Ala
 290 295 300

Glu Ala Asp Trp Pro Asp Ala Tyr Arg Val Asn Arg Tyr Val Arg Gly
 305 310 315 320

Leu Gly Glu Asp Thr Asn Ala Asp Glu Ala Leu Ser Gly Phe Glu Arg
 325 330 335

Phe Pro Ala Trp Met Trp Arg Asn Thr Val Val Arg Asp Phe Val Glu
 340 345 350

Trp Leu Arg Thr Arg Asn Gln Arg Tyr Glu Ser Gly Ala Leu Arg Gln
 355 360 365

Ala Gly Phe Tyr Gly Leu Asp Leu Tyr Ser Leu His Arg Ser Ile Gln
 370 375 380

Glu Val Ile Ser Tyr Leu Asp Lys Val Asp Pro Arg Ala Ala Ala Arg
 385 390 395 400

Ala Arg Ala Arg Tyr Ala Cys Phe Asp His Ala Cys Ala Asp Asp Gly
 405 410 415

Gln Ala Tyr Gly Phe Ala Ala Ala Phe Gly Ala Gly Pro Ser Cys Glu
 420 425 430

Arg Glu Ala Val Glu Gln Leu Val Asp Val Gln Arg Asn Ala Leu Ala
 435 440 445

Tyr Ala Arg Gln Asp Gly Leu Leu Ala Glu Asp Glu Leu Phe Tyr Ala
 450 455 460

Gln Gln Asn Ala Gln Thr Val Arg Asp Ala Glu Val Tyr Tyr Arg Ala
 465 470 475 480

Met Phe Ser Gly Arg Val Thr Ser Trp Asn Leu Arg Asp Gln His Met
 485 490 495

Ala Gln Thr Leu Gly Ser Leu Leu Thr His Leu Asp Arg His Leu Asp
 500 505 510

Ala Pro Pro Ala Arg Ile Val Val Trp Ala His Asn Ser His Val Gly
 515 520 525

Asp Ala Arg Ala Thr Glu Val Trp Ala Asp Gly Gln Leu Thr Leu Gly
 530 535 540

Gln Ile Val Arg Glu Arg Tyr Gly Asp Glu Ser Arg Ser Ile Gly Phe
 545 550 555 560

Ser Thr Tyr Thr Gly Thr Val Thr Ala Ala Ser Glu Trp Gly Gly Ile
 565 570 575

Ala Gln Arg Lys Ala Val Arg Pro Ala Leu His Gly Ser Val Glu Glu
 580 585 590

Leu Phe His Gln Thr Ala Asp Ser Phe Leu Val Ser Ala Arg Leu Ser
 595 600 605

Arg Asp Ala Glu Ala Pro Leu Asp Val Val Arg Leu Gly Arg Ala Ile
610 615 620

Gly Val Val Tyr Leu Pro Ala Thr Glu Arg Gln Ser His Tyr Leu His
625 630 635 640

Val Arg Pro Ala Asp Gln Phe Asp Ala Met Ile His Ile Asp Gln Thr
645 650 655

Arg Ala Leu Glu Pro Leu Glu Val Thr Ser Arg Trp Ile Ala Gly Glu
660 665 670

Asn Pro Glu Thr Tyr Pro Thr Gly Leu
675 680

<210> 24
<211> 144
<212> PRT
<213> Mycobacterium tuberculosis
<400> 24

Met Ala Thr Thr Leu Pro Val Gln Arg His Pro Arg Ser Leu Phe Pro
1 5 10 15

Glu Phe Ser Glu Leu Phe Ala Ala Phe Pro Ser Phe Ala Gly Leu Arg
20 25 30

Pro Thr Phe Asp Thr Arg Leu Met Arg Leu Glu Asp Glu Met Lys Glu
35 40 45

Gly Arg Tyr Glu Val Arg Ala Glu Leu Pro Gly Val Asp Pro Asp Lys
50 55 60

Asp Val Asp Ile Met Val Arg Asp Gly Gln Leu Thr Ile Lys Ala Glu
65 70 75 80

Arg Thr Glu Gln Lys Asp Phe Asp Gly Arg Ser Glu Phe Ala Tyr Gly
85 90 95

Ser Phe Val Arg Thr Val Ser Leu Pro Val Gly Ala Asp Glu Asp Asp
100 105 110

Ile Lys Ala Thr Tyr Asp Lys Gly Ile Leu Thr Val Ser Val Ala Val
115 120 125

Ser Glu Gly Lys Pro Thr Glu Lys His Ile Gln Ile Arg Ser Thr Asn
130 135 140

<210> 25
 <211> 331
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 25

Met Pro Asp Thr Met Val Thr Thr Asp Val Ile Lys Ser Ala Val Gln
 1 5 10 15

Leu Ala Cys Arg Ala Pro Ser Leu His Asn Ser Gln Pro Trp Arg Trp
 20 25 30

Ile Ala Glu Asp His Thr Val Ala Leu Phe Leu Asp Lys Asp Arg Val
 35 40 45

Leu Tyr Ala Thr Asp His Ser Gly Arg Glu Ala Leu Leu Gly Cys Gly
 50 55 60

Ala Val Leu Asp His Phe Arg Val Ala Met Ala Ala Ala Gly Thr Thr
 65 70 75 80

Ala Asn Val Glu Arg Phe Pro Asn Pro Asn Asp Pro Leu His Leu Ala
 85 90 95

Ser Ile Asp Phe Ser Pro Ala Asp Phe Val Thr Glu Gly His Arg Leu
 100 105 110

Arg Ala Asp Ala Ile Leu Leu Arg Arg Thr Asp Arg Leu Pro Phe Ala
 115 120 125

Glu Pro Pro Asp Trp Asp Leu Val Glu Ser Gln Leu Arg Thr Thr Val
 130 135 140

Thr Ala Asp Thr Val Arg Ile Asp Val Ile Ala Asp Asp Met Arg Pro
 145 150 155 160

Glu Leu Ala Ala Ala Ser Lys Leu Thr Glu Ser Leu Arg Leu Tyr Asp
 165 170 175

Ser Ser Tyr His Ala Glu Leu Phe Trp Trp Thr Gly Ala Phe Glu Thr
 180 185 190

Ser Glu Gly Ile Pro His Ser Ser Leu Val Ser Ala Ala Glu Ser Asp
 195 200 205

Arg Val Thr Phe Gly Arg Asp Phe Pro Val Val Ala Asn Thr Asp Arg
 210 215 220

Arg Pro Glu Phe Gly His Asp Arg Ser Lys Val Leu Val Leu Ser Thr
 225 230 235 240

Tyr Asp Asn Glu Arg Ala Ser Leu Leu Arg Cys Gly Glu Met Leu Ser
 245 250 255

Ala Val Leu Leu Asp Ala Thr Met Ala Gly Leu Ala Thr Cys Thr Leu
 260 265 270

Thr His Ile Thr Glu Leu His Ala Ser Arg Asp Leu Val Ala Ala Leu
 275 280 285

Ile Gly Gln Pro Ala Thr Pro Gln Ala Leu Val Arg Val Gly Leu Ala
 290 295 300

Pro Glu Met Glu Glu Pro Pro Pro Ala Thr Pro Arg Arg Pro Ile Asp
 305 310 315 320

Glu Val Phe His Val Arg Ala Lys Asp His Arg
 325 330

<210> 26
 <211> 195
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 26

Met Pro Leu Leu Thr Ile Gly Asp Gln Phe Pro Ala Tyr Gln Leu Thr
 1 5 10 15

Ala Leu Ile Gly Gly Asp Leu Ser Lys Val Asp Ala Lys Gln Pro Gly
 20 25 30

Asp Tyr Phe Thr Thr Ile Thr Ser Asp Glu His Pro Gly Lys Trp Arg
 35 40 45

Val Val Phe Phe Trp Pro Lys Asp Phe Thr Phe Val Cys Pro Thr Glu
 50 55 60

Ile Ala Ala Phe Ser Lys Leu Asn Asp Glu Phe Glu Asp Arg Asp Ala
 65 70 75 80

Gln Ile Leu Gly Val Ser Ile Asp Ser Glu Phe Ala His Phe Gln Trp
 85 90 95

Arg Ala Gln His Asn Asp Leu Lys Thr Leu Pro Phe Pro Met Leu Ser
 100 105 110

Asp Ile Lys Arg Glu Leu Ser Gln Ala Ala Gly Val Leu Asn Ala Asp
 115 120 125

Gly Val Ala Asp Arg Val Thr Phe Ile Val Asp Pro Asn Asn Glu Ile
 130 135 140

Gln Phe Val Ser Ala Thr Ala Gly Ser Val Gly Arg Asn Val Asp Glu
 145 150 155 160

Val Leu Arg Val Leu Asp Ala Leu Gln Ser Asp Glu Leu Cys Ala Cys
 165 170 175

Asn Trp Arg Lys Gly Asp Pro Thr Leu Asp Ala Gly Glu Leu Leu Lys
 180 185 190

Ala Ser Ala
 195

<210> 27
 <211> 272
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 27

Met Ser Gly Arg Gly Glu Pro Thr Met Lys Thr Ile Ile Val Gly Ile
 1 5 10 15

Asp Gly Ser His Ala Ala Ile Thr Ala Ala Leu Trp Gly Val Asp Glu
 20 25 30

Ala Ile Ser Arg Ala Val Pro Leu Arg Leu Val Ser Val Ile Lys Pro
 35 40 45

Thr His Pro Ser Pro Asp Asp Tyr Asp Arg Asp Leu Ala His Ala Glu
 50 55 60

Arg Ser Leu Arg Glu Ala Gln Ser Ala Val Glu Ala Ala Gly Lys Leu
 65 70 75 80

Val Lys Ile Glu Thr Asp Ile Pro Arg Gly Pro Ala Gly Pro Val Leu
 85 90 95

Val Glu Ala Ser Arg Asp Ala Glu Met Ile Cys Val Gly Ser Val Gly
100 105 110

Ile Gly Arg Tyr Ala Ser Ser Ile Leu Gly Ser Thr Ala Thr Glu Leu
115 120 125

Ala Glu Lys Ala His Cys Pro Val Ala Val Met Arg Ser Lys Val Asp
130 135 140

Gln Pro Ala Ser Asp Ile Asn Trp Ile Val Val Arg Met Thr Asp Ala
145 150 155 160

Pro Asp Asn Glu Ala Val Leu Glu Tyr Ala Ala Arg Glu Ala Lys Leu
165 170 175

Arg Gln Ala Pro Ile Leu Ala Leu Gly Gly Arg Pro Glu Glu Leu Arg
180 185 190

Glu Ile Pro Asp Gly Glu Phe Glu Arg Arg Val Gln Asp Trp His His
195 200 205

Arg His Pro Asp Val Arg Val Tyr Pro Ile Thr Thr His Thr Gly Ile
210 215 220

Ala Arg Phe Leu Ala Asp His Asp Glu Arg Val Gln Leu Ala Val Ile
225 230 235 240

Gly Gly Gly Glu Ala Gly Gln Leu Ala Arg Leu Val Gly Pro Ser Gly
245 250 255

His Pro Val Phe Arg His Ala Glu Cys Ser Val Leu Val Val Arg Arg
260 265 270

<210> 28

<211> 393

<212> PRT

<213> Mycobacterium tuberculosis

<400> 28

Met Arg Asp Ala Ile Pro Leu Gly Arg Ile Ala Gly Phe Val Val Asn
1 5 10 15

Val His Trp Ser Val Leu Val Ile Leu Trp Leu Phe Thr Trp Ser Leu
20 25 30

Ala Thr Met Leu Pro Gly Thr Val Gly Gly Tyr Pro Ala Val Val Tyr
35 40 45

Trp Leu Leu Gly Ala Gly Gly Ala Val Met Leu Leu Ala Ser Leu Leu
 50 55 60

Ala His Glu Leu Ala His Ala Val Val Ala Arg Arg Ala Gly Val Ser
 65 70 75 80

Val Glu Ser Val Thr Leu Trp Leu Phe Gly Gly Val Thr Ala Leu Gly
 85 90 95

Gly Glu Ala Lys Thr Pro Lys Ala Ala Phe Arg Ile Ala Phe Ala Gly
 100 105 110

Pro Ala Thr Ser Leu Ala Leu Ser Ala Thr Phe Gly Ala Leu Ala Ile
 115 120 125

Thr Leu Ala Gly Val Arg Thr Pro Ala Ile Val Ile Ser Val Ala Trp
 130 135 140

Trp Leu Ala Thr Val Asn Leu Leu Leu Gly Leu Phe Asn Leu Leu Pro
 145 150 155 160

Gly Ala Pro Leu Asp Gly Gly Arg Leu Val Arg Ala Tyr Leu Trp Arg
 165 170 175

Arg His Gly Asp Ser Val Arg Ala Gly Ile Gly Ala Ala Arg Ala Gly
 180 185 190

Arg Val Val Ala Leu Val Leu Ile Ala Leu Gly Leu Ala Glu Phe Val
 195 200 205

Ala Gly Gly Leu Val Gly Gly Val Trp Leu Ala Phe Ile Gly Trp Phe
 210 215 220

Ile Phe Ala Ala Ala Arg Glu Glu Glu Thr Arg Ile Ser Thr Gln Gln
 225 230 235 240

Leu Phe Ala Gly Val Arg Val Ala Asp Ala Met Thr Ala Gln Pro His
 245 250 255

Thr Ala Pro Gly Trp Ile Asn Val Glu Asp Phe Ile Gln Arg Tyr Val
 260 265 270

Leu Gly Glu Arg His Ser Ala Tyr Pro Val Ala Asp Arg Asp Gly Ser
 275 280 285

Ile Thr Gly Leu Val Ala Leu Arg Gln Leu Arg Asp Val Ala Pro Ser
 290 295 300

Arg Arg Ser Thr Thr Ser Val Gly Asp Ile Ala Leu Pro Leu His Ser
 305 310 315 320

Val Pro Thr Ala Arg Pro Gln Glu Pro Leu Thr Ala Leu Leu Glu Arg
 325 330 335

Met Ala Pro Leu Gly Pro Arg Ser Arg Ala Leu Val Thr Glu Gly Ser
 340 345 350

Ala Val Val Gly Ile Val Thr Pro Ser Asp Val Ala Arg Leu Ile Asp
 355 360 365

Val Tyr Arg Leu Ala Gln Pro Glu Pro Thr Phe Thr Thr Ser Pro Gln
 370 375 380

Asp Ala Asp Arg Phe Ser Asp Ala Gly
 385 390

<210> 29
 <211> 413
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 29

Met Ala Ser Ser Ala Ser Asp Gly Thr His Glu Arg Ser Ala Phe Arg
 1 5 10 15

Leu Ser Pro Pro Val Leu Ser Gly Ala Met Gly Pro Phe Met His Thr
 20 25 30

Gly Leu Tyr Val Ala Gln Ser Trp Arg Asp Tyr Leu Gly Gln Gln Pro
 35 40 45

Asp Lys Leu Pro Ile Ala Arg Pro Thr Ile Ala Leu Ala Ala Gln Ala
 50 55 60

Phe Arg Asp Glu Ile Val Leu Leu Gly Leu Lys Ala Arg Arg Pro Val
 65 70 75 80

Ser Asn His Arg Val Phe Glu Arg Ile Ser Gln Glu Val Ala Ala Gly
 85 90 95

Leu Glu Phe Tyr Gly Asn Arg Arg Trp Leu Glu Lys Pro Ser Gly Phe
 100 105 110

Phe Ala Gln Pro Pro Pro Leu Thr Glu Val Ala Val Arg Lys Val Lys
115 120 125

Asp Arg Arg Arg Ser Phe Tyr Arg Ile Phe Phe Asp Ser Gly Phe Thr
130 135 140

Pro His Pro Gly Glu Pro Gly Ser Gln Arg Trp Leu Ser Tyr Thr Ala
145 150 155 160

Asn Asn Arg Glu Tyr Ala Leu Leu Leu Arg His Pro Glu Pro Arg Pro
165 170 175

Trp Leu Val Cys Val His Gly Thr Glu Met Gly Arg Ala Pro Leu Asp
180 185 190

Leu Ala Val Phe Arg Ala Trp Lys Leu His Asp Glu Leu Gly Leu Asn
195 200 205

Ile Val Met Pro Val Leu Pro Met His Gly Pro Arg Gly Gln Gly Leu
210 215 220

Pro Lys Gly Ala Val Phe Pro Gly Glu Asp Val Leu Asp Asp Val His
225 230 235 240

Gly Thr Ala Gln Ala Val Trp Asp Ile Arg Arg Leu Leu Ser Trp Ile
245 250 255

Arg Ser Gln Glu Glu Glu Ser Leu Ile Gly Leu Asn Gly Leu Ser Leu
260 265 270

Gly Gly Tyr Ile Ala Ser Leu Val Ala Ser Leu Glu Glu Gly Leu Ala
275 280 285

Cys Ala Ile Leu Gly Val Pro Val Ala Asp Leu Ile Glu Leu Leu Gly
290 295 300

Arg His Cys Gly Leu Arg His Lys Asp Pro Arg Arg His Thr Val Lys
305 310 315 320

Met Ala Glu Pro Ile Gly Arg Met Ile Ser Pro Leu Ser Leu Thr Pro
325 330 335

Leu Val Pro Met Pro Gly Arg Phe Ile Tyr Ala Gly Ile Ala Asp Arg
340 345 350

Leu Val His Pro Arg Glu Gln Val Thr Arg Leu Trp Glu His Trp Gly
 355 360 365

Lys Pro Glu Ile Val Trp Tyr Pro Gly Gly His Thr Gly Phe Phe Gln
 370 375 380

Ser Arg Pro Val Arg Arg Phe Val Gln Ala Ala Leu Glu Gln Ser Gly
 385 390 395 400

Leu Leu Asp Ala Pro Arg Thr Gln Arg Asp Arg Ser Ala
 405 410

<210> 30
 <211> 120
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 30

Met Ser Thr Gln Arg Pro Arg His Ser Gly Ile Arg Ala Val Gly Pro
 1 5 10 15

Tyr Ala Trp Ala Gly Arg Cys Gly Arg Ile Gly Arg Trp Gly Val His
 20 25 30

Gln Glu Ala Met Met Asn Leu Ala Ile Trp His Pro Arg Lys Val Gln
 35 40 45

Ser Ala Thr Ile Tyr Gln Val Thr Asp Arg Ser His Asp Gly Arg Thr
 50 55 60

Ala Arg Val Pro Gly Asp Glu Ile Thr Ser Thr Val Ser Gly Trp Leu
 65 70 75 80

Ser Glu Leu Gly Thr Gln Ser Pro Leu Ala Asp Glu Leu Ala Arg Ala
 85 90 95

Val Arg Ile Gly Asp Trp Pro Ala Ala Tyr Ala Ile Gly Glu His Leu
 100 105 110

Ser Val Glu Ile Ala Val Ala Val
 115 120

<210> 31
 <211> 374
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 31

Met Arg Ser Glu Arg Leu Arg Trp Leu Val Ala Ala Glu Gly Pro Phe
1 5 10 15

Ala Ser Val Tyr Phe Asp Asp Ser His Asp Thr Leu Asp Ala Val Glu
20 25 30

Arg Arg Glu Ala Thr Trp Arg Asp Val Arg Lys His Leu Glu Ser Arg
35 40 45

Asp Ala Lys Gln Glu Leu Ile Asp Ser Leu Glu Glu Ala Val Arg Asp
50 55 60

Ser Arg Pro Ala Val Gly Gln Arg Gly Arg Ala Leu Ile Ala Thr Gly
65 70 75 80

Glu Gln Val Leu Val Asn Glu His Leu Ile Gly Pro Pro Pro Ala Thr
85 90 95

Val Ile Arg Leu Ser Asp Tyr Pro Tyr Val Val Pro Leu Ile Asp Leu
100 105 110

Glu Met Arg Arg Pro Thr Tyr Val Phe Ala Ala Val Asp His Thr Gly
115 120 125

Ala Asp Val Lys Leu Tyr Gln Gly Ala Thr Ile Ser Ser Thr Lys Ile
130 135 140

Asp Gly Val Gly Tyr Pro Val His Lys Pro Val Thr Ala Gly Trp Asn
145 150 155 160

Gly Tyr Gly Asp Phe Gln His Thr Thr Glu Glu Ala Ile Arg Met Asn
165 170 175

Cys Arg Ala Val Ala Asp His Leu Thr Arg Leu Val Asp Ala Ala Asp
180 185 190

Pro Glu Val Val Phe Val Ser Gly Glu Val Arg Ser Arg Thr Asp Leu
195 200 205

Leu Ser Thr Leu Pro Gln Arg Val Ala Val Arg Val Ser Gln Leu His
210 215 220

Ala Gly Pro Arg Lys Ser Ala Leu Asp Glu Glu Glu Ile Trp Asp Leu
225 230 235 240

Thr Ser Ala Glu Phe Thr Arg Arg Arg Tyr Ala Glu Ile Thr Asn Val
245 250 255

Ala Gln Gln Phe Glu Ala Glu Ile Gly Arg Gly Ser Gly Leu Ala Ala
260 265 270

Gln Gly Leu Ala Glu Val Cys Ala Ala Leu Arg Asp Gly Asp Val Asp
275 280 285

Thr Leu Ile Val Gly Glu Leu Gly Glu Ala Thr Val Val Thr Gly Lys
290 295 300

Ala Arg Thr Thr Val Ala Arg Asp Ala Asp Met Leu Ser Glu Leu Gly
305 310 315 320

Glu Pro Val Asp Arg Val Ala Arg Ala Asp Glu Ala Leu Pro Phe Ala
325 330 335

Ala Ile Ala Val Gly Ala Ala Leu Val Arg Asp Asp Asn Arg Ile Ala
340 345 350

Pro Leu Asp Gly Val Gly Ala Leu Leu Arg Tyr Ala Ala Thr Asn Arg
355 360 365

Leu Gly Ser His Arg Ser
370

<210> 32
<211> 179
<212> PRT
<213> Mycobacterium tuberculosis

<400> 32

Met Leu His Arg Asp Asp His Ile Asn Pro Pro Arg Pro Arg Gly Leu
1 5 10 15

Asp Val Pro Cys Ala Arg Leu Arg Ala Thr Asn Pro Leu Arg Ala Leu
20 25 30

Ala Arg Cys Val Gln Ala Gly Lys Pro Gly Thr Ser Ser Gly His Arg
35 40 45

Ser Val Pro His Thr Ala Asp Leu Arg Ile Glu Ala Trp Ala Pro Thr
50 55 60

Arg Asp Gly Cys Ile Arg Gln Ala Val Leu Gly Thr Val Glu Ser Phe
65 70 75 80

Leu Asp Leu Glu Ser Ala His Ala Val His Thr Arg Leu Arg Arg Leu
85 90 95

Thr Ala Asp Arg Asp Asp Asp Leu Leu Val Ala Val Leu Glu Glu Val
100 105 110

Ile Tyr Leu Leu Asp Thr Val Gly Glu Thr Pro Val Asp Leu Arg Leu
115 120 125

Arg Asp Val Asp Gly Gly Val Asp Val Thr Phe Ala Thr Thr Asp Ala
130 135 140

Ser Thr Leu Val Gln Val Gly Ala Val Pro Lys Ala Val Ser Leu Asn
145 150 155 160

Glu Leu Arg Phe Ser Gln Gly Arg His Gly Trp Arg Cys Ala Val Thr
165 170 175

Leu Asp Val

<210> 33
<211> 375
<212> PRT
<213> Mycobacterium tuberculosis

<400> 33

Val Thr Gln Thr Gly Lys Arg Gln Arg Arg Lys Phe Gly Arg Ile Arg
1 5 10 15

Gln Phe Asn Ser Gly Arg Trp Gln Ala Ser Tyr Thr Gly Pro Asp Gly
20 25 30

Arg Val Tyr Ile Ala Pro Lys Thr Phe Asn Ala Lys Ile Asp Ala Glu
35 40 45

Ala Trp Leu Thr Asp Arg Arg Arg Glu Ile Asp Arg Gln Leu Trp Ser
50 55 60

Pro Ala Ser Gly Gln Glu Asp Arg Pro Gly Ala Pro Phe Gly Glu Tyr
65 70 75 80

Ala Glu Gly Trp Leu Lys Gln Arg Gly Ile Lys Asp Arg Thr Arg Ala
85 90 95

His Tyr Arg Lys Leu Leu Asp Asn His Ile Leu Ala Thr Phe Ala Asp
 100 105 110

Thr Asp Leu Arg Asp Ile Thr Pro Ala Ala Val Arg Arg Trp Tyr Ala
 115 120 125

Thr Thr Ala Val Gly Thr Pro Thr Met Arg Ala His Ser Tyr Ser Leu
 130 135 140

Leu Arg Ala Ile Met Gln Thr Ala Leu Ala Asp Asp Leu Ile Asp Ser
 145 150 155 160

Asn Pro Cys Arg Ile Ser Gly Ala Ser Thr Ala Arg Arg Val His Lys
 165 170 175

Ile Arg Pro Ala Thr Leu Asp Glu Leu Glu Thr Ile Thr Lys Ala Met
 180 185 190

Pro Asp Pro Tyr Gln Ala Phe Val Leu Met Ala Ala Trp Leu Ala Met
 195 200 205

Arg Tyr Gly Glu Leu Thr Glu Leu Arg Arg Lys Asp Ile Asp Leu His
 210 215 220

Gly Glu Val Ala Arg Val Arg Arg Ala Val Val Arg Val Gly Glu Gly
 225 230 235 240

Phe Lys Val Thr Thr Pro Lys Ser Asp Ala Gly Val Arg Asp Ile Ser
 245 250 255

Ile Pro Pro His Leu Ile Pro Ala Ile Glu Asp His Leu His Lys His
 260 265 270

Val Asn Pro Gly Arg Glu Ser Leu Leu Phe Pro Ser Val Asn Asp Pro
 275 280 285

Asn Arg His Leu Ala Pro Ser Ala Leu Tyr Arg Met Phe Tyr Lys Ala
 290 295 300

Arg Lys Ala Ala Gly Arg Pro Asp Leu Arg Val His Asp Leu Arg His
 305 310 315 320

Ser Gly Ala Val Leu Ala Ala Ser Thr Gly Ala Thr Leu Ala Glu Leu
 325 330 335

Met Gln Arg Leu Gly His Ser Thr Ala Gly Ala Ala Leu Arg Tyr Gln
340 345 350

His Ala Ala Lys Gly Arg Asp Arg Glu Ile Ala Ala Leu Leu Ser Lys
355 360 365

Leu Ala Glu Asn Gln Glu Met
370 375

<210> 34
<211> 371
<212> PRT
<213> Mycobacterium tuberculosis

<400> 34

Met Arg Val Gly Ile Pro Thr Glu Thr Lys Asn Asn Glu Phe Arg Val
1 5 10 15

Ala Ile Thr Pro Ala Gly Val Ala Glu Leu Thr Arg Arg Gly His Glu
20 25 30

Val Leu Ile Gln Ala Gly Ala Gly Glu Gly Ser Ala Ile Thr Asp Ala
35 40 45

Asp Phe Lys Ala Ala Gly Ala Gln Leu Val Gly Thr Ala Asp Gln Val
50 55 60

Trp Ala Asp Ala Asp Leu Leu Leu Lys Val Lys Glu Pro Ile Ala Ala
65 70 75 80

Glu Tyr Gly Arg Leu Arg His Gly Gln Ile Leu Phe Thr Phe Leu His
85 90 95

Leu Ala Ala Ser Arg Ala Cys Thr Asp Ala Leu Leu Asp Ser Gly Thr
100 105 110

Thr Ser Ile Ala Tyr Glu Thr Val Gln Thr Ala Asp Gly Ala Leu Pro
115 120 125

Leu Leu Ala Pro Met Ser Glu Val Ala Gly Arg Leu Ala Ala Gln Val
130 135 140

Gly Ala Tyr His Leu Met Arg Thr Gln Gly Gly Arg Gly Val Leu Met
145 150 155 160

Gly Gly Val Pro Gly Val Glu Pro Ala Asp Val Val Val Ile Gly Ala
165 170 175

Gly Thr Ala Gly Tyr Asn Ala Ala Arg Ile Ala Asn Gly Met Gly Ala
180 185 190

Thr Val Thr Val Leu Asp Ile Asn Ile Asp Lys Leu Arg Gln Leu Asp
195 200 205

Ala Glu Phe Cys Gly Arg Ile His Thr Arg Tyr Ser Ser Ala Tyr Glu
210 215 220

Leu Glu Gly Ala Val Lys Arg Ala Asp Leu Val Ile Gly Ala Val Leu
225 230 235 240

Val Pro Gly Ala Lys Ala Pro Lys Leu Val Ser Asn Ser Leu Val Ala
245 250 255

His Met Lys Pro Gly Ala Val Leu Val Asp Ile Ala Ile Asp Gln Gly
260 265 270

Gly Cys Phe Glu Gly Ser Arg Pro Thr Thr Tyr Asp His Pro Thr Phe
275 280 285

Ala Val His Asp Thr Leu Phe Tyr Cys Val Ala Asn Met Pro Ala Ser
290 295 300

Val Pro Lys Thr Ser Thr Tyr Ala Leu Thr Asn Ala Thr Met Pro Tyr
305 310 315 320

Val Leu Glu Leu Ala Asp His Gly Trp Arg Ala Ala Cys Arg Ser Asn
325 330 335

Pro Ala Leu Ala Lys Gly Leu Ser Thr His Glu Gly Ala Leu Leu Ser
340 345 350

Glu Arg Val Ala Thr Asp Leu Gly Val Pro Phe Thr Glu Pro Ala Ser
355 360 365

Val Leu Ala
370

<210> 35
<211> 104
<212> PRT
<213> Mycobacterium tuberculosis

<400> 35

Met Val Ile Arg Phe Asp Gln Ile Gly Ser Leu Val Leu Ser Met Lys
1 5 10 15

Ser Leu Ala Ser Leu Ser Phe Gln Arg Cys Leu Arg Glu Asn Ser Ser
20 25 30

Leu Val Ala Ala Leu Asp Arg Leu Asp Ala Ala Val Asp Glu Leu Ser
35 40 45

Ala Leu Ser Phe Asp Ala Leu Thr Thr Pro Glu Arg Asp Arg Ala Arg
50 55 60

Arg Asp Arg Asp His His Pro Trp Ser Arg Ser Arg Ser Gln Leu Ser
65 70 75 80

Pro Arg Met Ala His Gly Ala Val His Gln Cys Gln Trp Pro Lys Ala
85 90 95

Val Trp Ala Val Ile Asp Asn Pro
100

<210> 36

<211> 344

<212> PRT

<213> Mycobacterium tuberculosis

<400> 36

Val Leu Lys Asn Ala Val Leu Leu Ala Cys Arg Ala Pro Ser Val His
1 5 10 15

Asn Ser Gln Pro Trp Arg Trp Val Ala Glu Ser Gly Ser Glu His Thr
20 25 30

Thr Val His Leu Phe Val Asn Arg His Arg Thr Val Pro Ala Thr Asp
35 40 45

His Ser Gly Arg Gln Ala Ile Ile Ser Cys Gly Ala Val Leu Asp His
50 55 60

Leu Arg Ile Ala Met Thr Ala Ala His Trp Gln Ala Asn Ile Thr Arg
65 70 75 80

Phe Pro Gln Pro Asn Gln Pro Asp Gln Leu Ala Thr Val Glu Phe Ser
85 90 95

Pro Ile Asp His Val Thr Ala Gly Gln Arg Asn Arg Ala Gln Ala Ile
 100 105 110

Leu Gln Arg Arg Thr Asp Arg Leu Pro Phe Asp Ser Pro Met Tyr Trp
 115 120 125

His Leu Phe Glu Pro Ala Leu Arg Asp Ala Val Asp Lys Asp Val Ala
 130 135 140

Met Leu Asp Val Val Ser Asp Asp Gln Arg Thr Arg Leu Val Val Ala
 145 150 155 160

Ser Gln Leu Ser Glu Val Leu Arg Arg Asp Asp Pro Tyr Tyr His Ala
 165 170 175

Glu Leu Glu Trp Trp Thr Ser Pro Phe Val Leu Ala His Gly Val Pro
 180 185 190

Pro Asp Thr Leu Ala Ser Asp Ala Glu Arg Leu Arg Val Asp Leu Gly
 195 200 205

Arg Asp Phe Pro Val Arg Ser Tyr Gln Asn Arg Arg Ala Glu Leu Ala
 210 215 220

Asp Asp Arg Ser Lys Val Leu Val Leu Ser Thr Pro Ser Asp Thr Arg
 225 230 235 240

Ala Asp Ala Leu Arg Cys Gly Glu Val Leu Ser Thr Ile Leu Leu Glu
 245 250 255

Cys Thr Met Ala Gly Met Ala Thr Cys Thr Leu Thr His Leu Ile Glu
 260 265 270

Ser Ser Asp Ser Arg Asp Ile Val Arg Gly Leu Thr Arg Gln Arg Gly
 275 280 285

Glu Pro Gln Ala Leu Ile Arg Val Gly Ile Ala Pro Pro Leu Ala Ala
 290 295 300

Val Pro Ala Pro Thr Pro Arg Arg Pro Leu Asp Ser Val Leu Gln Ile
 305 310 315 320

Arg Gln Thr Pro Glu Lys Gly Arg Asn Ala Ser Asp Arg Asn Ala Arg
 325 330 335

Glu Thr Gly Trp Phe Ser Pro Pro
340

<210> 37
<211> 336
<212> PRT
<213> Mycobacterium tuberculosis

<400> 37

Val Trp Ser Ala Ser Gly Gly Gln Cys Gly Lys Tyr Leu Ala Ala Ser
1 5 10 15

Met Val Leu Gln Leu Asp Gly Leu Glu Arg His Gly Val Leu Glu Phe
20 25 30

Gly Arg Asp Arg Tyr Gly Pro Glu Val Arg Glu Glu Leu Leu Ala Met
35 40 45

Ser Ala Ala Ser Ile Asp Arg Tyr Leu Lys Thr Ala Lys Ala Lys Asp
50 55 60

Gln Ile Ser Gly Val Ser Thr Thr Lys Pro Ser Pro Leu Leu Arg Asn
65 70 75 80

Ser Ile Lys Val Arg Arg Ala Gly Asp Glu Val Glu Ala Glu Pro Gly
85 90 95

Phe Phe Glu Gly Asp Thr Val Ala His Cys Gly Pro Thr Leu Lys Gly
100 105 110

Glu Phe Ala His Thr Leu Asn Leu Thr Asp Val His Ile Gly Trp Val
115 120 125

Phe Thr Arg Thr Val Arg Asn Asn Ala Arg Thr His Ile Leu Ala Gly
130 135 140

Leu Lys Ala Ser Val Thr Glu Ile Pro His Gly Ile Thr Gly Leu Asp
145 150 155 160

Phe Asp Asn Gly Thr Val Phe Leu Asn Lys Pro Val Ile Ser Trp Ala
165 170 175

Gly Asp Asn Gly Ile Tyr Phe Thr Arg Phe Arg Pro Tyr Lys Lys Asn
180 185 190

His Ala Thr Ile Glu Ser Lys Asn Asn His Leu Val Arg Lys Tyr Ala
195 200 205

Phe Tyr Tyr Arg Tyr Asp Thr Ala Glu Glu Arg Ala Val Leu Asn Arg
 210 215 220

Met Trp Lys Leu Val Asn Asp Arg Leu Asn Tyr Leu Thr Pro Thr Ile
 225 230 235 240

Lys Pro Ile Gly Tyr Ala Ser Ser Ala Asp Gly Arg Arg Arg Arg Leu
 245 250 255

Tyr Asp Ala Pro Gln Thr Pro Leu Asp Arg Pro Leu Ala Ala Arg Val
 260 265 270

Leu Ser Ala Ala Gln Gln Ala Asp Leu Ile Thr Tyr Arg Asp Ser Leu
 275 280 285

Asn Pro Ala Gln Ile Gly Arg Lys Ile Ala Asp Leu Gln Asn Arg Leu
 290 295 300

Leu Ile Leu Ala Lys Glu Lys Thr Glu Gln Leu Tyr Leu Ala Asn Ile
 305 310 315 320

Pro Thr Ala Leu Pro Asp Ile His Lys Gly Ile Leu Ile Lys Ala Gly
 325 330 335

<210> 38
 <211> 110
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 38

Val Val Gln Gly Arg Thr Val Leu Phe Arg Thr Ala Glu Gly Ala Lys
 1 5 10 15

Leu Phe Ser Ala Val Ala Lys Cys Ala Val Ala Phe Glu Ala Asp Asp
 20 25 30

His Asn Val Ala Glu Gly Trp Ser Val Ile Val Lys Val Arg Ala Gln
 35 40 45

Val Leu Thr Thr Asp Ala Gly Val Arg Glu Ala Glu Arg Ala Gln Leu
 50 55 60

Leu Pro Trp Thr Ala Thr Leu Lys Arg His Cys Val Arg Val Ile Pro
 65 70 75 80

Trp Glu Ile Thr Gly Arg His Phe Arg Phe Gly Pro Glu Pro Asp Arg
85 90 95

Ser Gln Thr Phe Ala Cys Glu Ala Ser Ser His Asn Gln Arg
100 105 110

<210> 39
<211> 463
<212> PRT
<213> Mycobacterium tuberculosis

<400> 39

Met Asn His Leu Thr Thr Leu Asp Ala Gly Phe Leu Lys Ala Glu Asp
1 5 10 15

Val Asp Arg His Val Ser Leu Ala Ile Gly Ala Leu Ala Val Ile Glu
20 25 30

Gly Pro Ala Pro Asp Gln Glu Ala Phe Leu Ser Ser Leu Ala Gln Arg
35 40 45

Leu Arg Pro Cys Thr Arg Phe Gly Gln Arg Leu Arg Leu Arg Pro Phe
50 55 60

Asp Leu Gly Ala Pro Lys Trp Val Asp Asp Pro Asp Phe Asp Leu Gly
65 70 75 80

Arg His Val Trp Arg Ile Ala Leu Pro Arg Pro Gly Asn Glu Asp Gln
85 90 95

Leu Phe Glu Leu Ile Ala Asp Leu Met Ala Arg Arg Leu Asp Arg Gly
100 105 110

Arg Pro Leu Trp Glu Val Trp Val Ile Glu Gly Leu Ala Asp Ser Lys
115 120 125

Trp Ala Ile Leu Thr Lys Leu His His Cys Met Ala Asp Gly Ile Ala
130 135 140

Ala Thr His Leu Leu Ala Gly Leu Ser Asp Glu Ser Met Ser Asp Ser
145 150 155 160

Phe Ala Ser Asn Ile His Thr Thr Met Gln Ser Gln Ser Ala Ser Val
165 170 175

Arg Arg Gly Gly Phe Arg Val Asn Pro Ser Glu Ala Leu Thr Ala Ser
180 185 190

Thr Ala Val Met Ala Gly Ile Val Arg Ala Ala Lys Gly Ala Ser Glu
 195 200 205

Ile Ala Ala Gly Val Leu Ser Pro Ala Ala Ser Ser Leu Asn Gly Pro
 210 215 220

Ile Ser Asp Leu Arg Arg Tyr Ser Ala Ala Lys Val Pro Leu Ala Asp
 225 230 235 240

Val Glu Gln Val Cys Arg Lys Phe Asp Val Thr Ile Asn Asp Val Ala
 245 250 255

Leu Ala Ala Ile Thr Glu Ser Tyr Arg Asn Val Leu Ile Gln Arg Gly
 260 265 270

Glu Arg Pro Arg Phe Asp Ser Leu Arg Thr Leu Val Pro Val Ser Thr
 275 280 285

Arg Ser Asn Ser Ala Leu Ser Lys Thr Asp Asn Arg Val Ser Leu Met
 290 295 300

Leu Pro Asn Leu Pro Val Asp Gln Glu Asn Pro Leu Gln Arg Leu Arg
 305 310 315 320

Ile Val His Ser Arg Leu Thr Arg Ala Lys Ala Gly Gly Gln Arg Gln
 325 330 335

Phe Gly Asn Thr Leu Met Ala Ile Ala Asn Arg Leu Pro Phe Pro Met
 340 345 350

Thr Ala Trp Ala Val Gly Leu Leu Met Arg Leu Pro Gln Arg Gly Val
 355 360 365

Val Thr Val Ala Thr Asn Val Pro Gly Pro Arg Arg Pro Leu Gln Ile
 370 375 380

Met Gly Arg Arg Val Leu Asp Leu Tyr Pro Val Ser Pro Ile Ala Met
 385 390 395 400

Gln Leu Arg Thr Ser Val Ala Met Leu Ser Tyr Ala Asp Asp Leu Tyr
 405 410 415

Phe Gly Ile Leu Ala Asp Tyr Asp Val Val Ala Asp Ala Gly Gln Leu
 420 425 430

Ala Arg Gly Ile Glu Asp Ala Val Ala Arg Leu Val Ala Ile Ser Lys
 435 440 445

Arg Arg Lys Val Thr Arg Arg Arg Gly Ala Leu Ser Leu Val Val
 450 455 460

<210> 40
 <211> 332
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 40

Met Asn Thr His Phe Pro Asp Ala Glu Thr Val Arg Thr Val Leu Thr
 1 5 10 15

Leu Ala Val Arg Ala Pro Ser Ile His Asn Thr Gln Pro Trp Arg Trp
 20 25 30

Arg Val Cys Pro Thr Ser Leu Glu Leu Phe Ser Arg Pro Asp Met Gln
 35 40 45

Leu Arg Ser Thr Asp Pro Asp Gly Arg Glu Leu Ile Leu Ser Cys Gly
 50 55 60

Val Ala Leu His His Cys Val Val Ala Leu Ala Ser Leu Gly Trp Gln
 65 70 75 80

Ala Lys Val Asn Arg Phe Pro Asp Pro Lys Asp Arg Cys His Leu Ala
 85 90 95

Thr Ile Gly Val Gln Pro Leu Val Pro Asp Gln Ala Asp Val Ala Leu
 100 105 110

Ala Ala Ala Ile Pro Arg Arg Arg Thr Asp Arg Arg Ala Tyr Ser Cys
 115 120 125

Trp Pro Val Pro Gly Gly Asp Ile Ala Leu Met Ala Ala Arg Ala Ala
 130 135 140

Arg Gly Gly Val Met Leu Arg Gln Val Ser Ala Leu Asp Arg Met Lys
 145 150 155 160

Ala Ile Val Ala Gln Ala Val Leu Asp His Val Thr Asp Glu Glu Tyr
 165 170 175

Leu Arg Glu Leu Thr Ile Trp Ser Gly Arg Tyr Gly Ser Val Ala Gly
 180 185 190

Val Pro Ala Arg Asn Glu Pro Pro Ser Asp Pro Ser Ala Pro Ile Pro
 195 200 205

Gly Arg Leu Phe Ala Gly Pro Gly Leu Ser Gln Pro Ser Asp Val Leu
 210 215 220

Pro Ala Asp Asp Gly Ala Ala Ile Leu Ala Leu Gly Thr Glu Thr Asp
 225 230 235 240

Asp Arg Leu Ala Arg Leu Arg Ala Gly Glu Ala Ala Ser Ile Val Leu
 245 250 255

Leu Thr Ala Thr Ala Met Gly Leu Ala Cys Cys Pro Ile Thr Glu Pro
 260 265 270

Leu Glu Ile Ala Lys Thr Arg Asp Ala Val Arg Ala Glu Val Phe Gly
 275 280 285

Ala Gly Gly Tyr Pro Gln Met Leu Leu Arg Val Gly Trp Ala Pro Ile
 290 295 300

Asn Ala Asp Pro Leu Pro Pro Thr Pro Arg Arg Glu Leu Ser Gln Val
 305 310 315 320

Val Glu Trp Pro Glu Glu Leu Leu Arg Gln Arg Cys
 325 330

<210> 41
 <211> 578
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 41

Met Thr Thr Gly Gly Leu Val Asp Glu Asn Asp Gly Ala Ala Met Arg
 1 5 10 15

Pro Leu Arg His Thr Leu Ser Gln Leu Arg Leu His Glu Leu Leu Val
 20 25 30

Glu Val Gln Asp Arg Val Glu Gln Ile Val Glu Gly Arg Asp Arg Leu
 35 40 45

Asp Gly Leu Val Glu Ala Met Leu Val Val Thr Ala Gly Leu Asp Leu
 50 55 60

Glu Ala Thr Leu Arg Ala Ile Val His Ser Ala Thr Ser Leu Val Asp
 65 70 75 80

Ala Arg Tyr Gly Ala Met Glu Val His Asp Arg Gln His Arg Val Leu
 85 90 95

His Phe Val Tyr Glu Gly Ile Asp Glu Glu Thr Val Arg Arg Ile Gly
 100 105 110

His Leu Pro Lys Gly Leu Gly Val Ile Gly Leu Leu Ile Glu Asp Pro
 115 120 125

Lys Pro Leu Arg Leu Asp Asp Val Ser Ala His Pro Ala Ser Ile Gly
 130 135 140

Phe Pro Pro Tyr His Pro Pro Met Arg Thr Phe Leu Gly Val Pro Val
 145 150 155 160

Arg Val Arg Asp Glu Ser Phe Gly Thr Leu Tyr Leu Thr Asp Lys Thr
 165 170 175

Asn Gly Gln Pro Phe Ser Asp Asp Asp Glu Val Leu Val Gln Ala Leu
 180 185 190

Ala Ala Ala Ala Gly Ile Ala Val Ala Asn Ala Arg Leu Tyr Gln Gln
 195 200 205

Ala Lys Ala Arg Gln Ser Trp Ile Glu Ala Thr Arg Asp Ile Ala Thr
 210 215 220

Glu Leu Leu Ser Gly Thr Glu Pro Ala Thr Val Phe Arg Leu Val Ala
 225 230 235 240

Ala Glu Ala Leu Lys Leu Thr Ala Ala Asp Ala Ala Leu Val Ala Val
 245 250 255

Pro Val Asp Glu Asp Met Pro Ala Ala Asp Val Gly Glu Leu Leu Val
 260 265 270

Ile Glu Thr Val Gly Ser Ala Val Ala Ser Ile Val Gly Arg Thr Ile
 275 280 285

Pro Val Ala Gly Ala Val Leu Arg Glu Val Phe Val Asn Gly Ile Pro
 290 295 300

Arg Arg Val Asp Arg Val Asp Leu Glu Gly Leu Asp Glu Leu Ala Asp
 305 310 315 320

Ala Gly Pro Ala Leu Leu Leu Pro Leu Arg Ala Arg Gly Thr Val Ala
 325 330 335

Gly Val Val Val Val Leu Ser Gln Gly Gly Pro Gly Ala Phe Thr Asp
 340 345 350

Glu Gln Leu Glu Met Met Ala Ala Phe Ala Asp Gln Ala Ala Leu Ala
 355 360 365

Trp Gln Leu Ala Thr Ser Gln Arg Arg Met Arg Glu Leu Asp Val Leu
 370 375 380

Thr Asp Arg Asp Arg Ile Ala Arg Asp Leu His Asp His Val Ile Gln
 385 390 395 400

Arg Leu Phe Ala Ile Gly Leu Ala Leu Gln Gly Ala Val Pro His Glu
 405 410 415

Arg Asn Pro Glu Val Gln Gln Arg Leu Ser Asp Val Val Asp Asp Leu
 420 425 430

Gln Asp Val Ile Gln Glu Ile Arg Thr Thr Ile Tyr Asp Leu His Gly
 435 440 445

Ala Ser Gln Gly Ile Thr Arg Leu Arg Gln Arg Ile Asp Ala Ala Val
 450 455 460

Ala Gln Phe Ala Asp Ser Gly Leu Arg Thr Ser Val Gln Phe Val Gly
 465 470 475 480

Pro Leu Ser Val Val Asp Ser Ala Leu Ala Asp Gln Ala Glu Ala Val
 485 490 495

Val Arg Glu Ala Val Ser Asn Ala Val Arg His Ala Lys Ala Ser Thr
 500 505 510

Leu Thr Val Arg Val Lys Val Asp Asp Asp Leu Cys Ile Glu Val Thr
 515 520 525

Asp Asn Gly Arg Gly Leu Pro Asp Glu Phe Thr Gly Ser Gly Leu Thr
 530 535 540

Asn Leu Arg Gln Arg Ala Glu Gln Ala Gly Gly Glu Phe Thr Leu Ala
 545 550 555 560

Ser Val Pro Gly Ala Ser Gly Thr Val Leu Arg Trp Ser Ala Pro Leu
565 570 575

Ser Gln

<210> 42
<211> 268
<212> PRT
<213> Mycobacterium tuberculosis

<400> 42

Met Ser Asp Pro Arg Pro Ala Arg Ala Val Val Val Gly Ile Asp Gly
1 5 10 15

Ser Arg Ala Ala Thr His Ala Ala Leu Trp Ala Val Asp Glu Ala Val
20 25 30

Asn Arg Asp Ile Pro Leu Arg Leu Val Tyr Val Ile Asp Pro Ser Gln
35 40 45

Leu Ser Ala Ala Gly Glu Gly Gly Gly Gln Ser Ala Ala Arg Ala Ala
50 55 60

Leu His Asp Ala Ser Arg Lys Val Glu Ala Thr Gly Gln Pro Val Lys
65 70 75 80

Ile Glu Thr Glu Val Leu Cys Gly Arg Pro Leu Thr Lys Leu Met Gln
85 90 95

Glu Ser Arg Ser Ala Ala Met Leu Cys Val Gly Ser Val Gly Leu Asp
100 105 110

His Val Arg Gly Arg Arg Gly Ser Val Ala Ala Thr Leu Ala Gly Ser
115 120 125

Ala Leu Cys Pro Val Ala Val Ile His Pro Ser Pro Ala Glu Pro Ala
130 135 140

Thr Thr Ser Gln Val Ser Ala Val Val Ala Glu Val Asp Asn Gly Val
145 150 155 160

Val Leu Arg His Ala Phe Glu Glu Ala Arg Leu Arg Gly Val Pro Leu
165 170 175

Arg Ala Val Ala Val His Ala Ala Glu Thr Pro Asp Asp Val Glu Gln
180 185 190

Gly Ser Arg Leu Ala His Val His Leu Ser Arg Arg Leu Ala His Trp
 195 200 205

Thr Arg Leu Tyr Pro Glu Val Arg Val Asp Arg Ala Ile Ala Gly Gly
 210 215 220

Ser Ala Cys Arg His Leu Ala Ala Asn Ala Lys Pro Gly Gln Leu Phe
 225 230 235 240

Val Ala Asp Ser His Ser Ala His Glu Leu Cys Gly Ala Tyr Gln Pro
 245 250 255

Gly Cys Ala Val Leu Thr Val Arg Ser Ala Asn Leu
 260 265

<210> 43
 <211> 181
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 43

Met Thr Glu Tyr Glu Gly Pro Lys Thr Lys Phe His Ala Leu Met Gln
 1 5 10 15

Glu Gln Ile His Asn Glu Phe Thr Ala Ala Gln Gln Tyr Val Ala Ile
 20 25 30

Ala Val Tyr Phe Asp Ser Glu Asp Leu Pro Gln Leu Ala Lys His Phe
 35 40 45

Tyr Ser Gln Ala Val Glu Glu Arg Asn His Ala Met Met Leu Val Gln
 50 55 60

His Leu Leu Asp Arg Asp Leu Arg Val Glu Ile Pro Gly Val Asp Thr
 65 70 75 80

Val Arg Asn Gln Phe Asp Arg Pro Arg Glu Ala Leu Ala Leu Ala Leu
 85 90 95

Asp Gln Glu Arg Thr Val Thr Asp Gln Val Gly Arg Leu Thr Ala Val
 100 105 110

Ala Arg Asp Glu Gly Asp Phe Leu Gly Glu Gln Phe Met Gln Trp Phe
 115 120 125

Leu Gln Glu Gln Ile Glu Glu Val Ala Leu Met Ala Thr Leu Val Arg
 130 135 140

Val Ala Asp Arg Ala Gly Ala Asn Leu Phe Glu Leu Glu Asn Phe Val
 145 150 155 160

Ala Arg Glu Val Asp Val Ala Pro Ala Ala Ser Gly Ala Pro His Ala
 165 170 175

Ala Gly Gly Arg Leu
 180

<210> 44
 <211> 274
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 44

Met Thr Trp Ala Asp Glu Val Leu Ala Gly His Pro Phe Val Val Ala
 1 5 10 15

His Arg Gly Ala Ser Ala Ala Arg Pro Glu His Thr Leu Ala Ala Tyr
 20 25 30

Asp Leu Ala Leu Lys Glu Gly Ala Asp Gly Val Glu Cys Asp Val Arg
 35 40 45

Leu Thr Arg Asp Gly His Leu Val Cys Val His Asp Arg Arg Leu Asp
 50 55 60

Arg Thr Ser Thr Gly Ala Gly Leu Val Ser Thr Met Thr Leu Ala Gln
 65 70 75 80

Leu Arg Glu Leu Glu Tyr Gly Ala Trp His Asp Ser Trp Arg Pro Asp
 85 90 95

Gly Ser His Gly Asp Thr Ser Leu Leu Thr Leu Asp Ala Leu Val Ser
 100 105 110

Leu Val Leu Asp Trp His Arg Pro Val Lys Ile Phe Val Glu Thr Lys
 115 120 125

His Pro Val Arg Tyr Gly Ser Leu Val Glu Asn Lys Leu Leu Ala Leu
 130 135 140

Leu His Arg Phe Gly Ile Ala Ala Pro Ala Ser Ala Asp Arg Ser Arg
 145 150 155 160

Ala Val Val Met Ser Phe Ser Ala Ala Ala Val Trp Arg Ile Arg Arg
165 170 175

Ala Ala Pro Leu Leu Pro Thr Val Leu Leu Gly Lys Thr Pro Arg Tyr
180 185 190

Leu Thr Ser Ser Ala Ala Thr Ala Val Gly Ala Thr Ala Val Gly Pro
195 200 205

Ser Leu Pro Ala Leu Lys Glu Tyr Pro Gln Leu Val Asp Arg Ser Ala
210 215 220

Ala Gln Gly Arg Ala Val Tyr Cys Trp Asn Val Asp Glu Tyr Glu Asp
225 230 235 240

Ile Asp Phe Cys Arg Glu Val Gly Val Ala Trp Ile Gly Thr His His
245 250 255

Pro Gly Arg Thr Lys Ala Trp Leu Glu Asp Gly Arg Ala Asn Gly Thr
260 265 270

Thr Arg

<210> 45
<211> 248
<212> PRT
<213> Mycobacterium tuberculosis

<400> 45

Val Ser Asp Gly Glu Gln Ala Lys Ser Arg Arg Arg Arg Gly Arg Arg
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Arg Gly Arg Arg Ala Ala Ala Thr Ala Glu Asn His Met Asp Ala Gln
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Pro Ala Gly Asp Ala Thr Pro Thr Pro Ala Thr Ala Lys Arg Ser Arg
35 40 45

Ser Arg Ser Pro Arg Arg Gly Ser Thr Arg Met Arg Thr Val His Glu
50 55 60

Thr Ser Ala Gly Gly Leu Val Ile Asp Gly Ile Asp Gly Pro Arg Asp
65 70 75 80

Ala Gln Val Ala Ala Leu Ile Gly Arg Val Asp Arg Arg Gly Arg Leu
85 90 95

Leu Trp Ser Leu Pro Lys Gly His Ile Glu Leu Gly Glu Thr Ala Glu
100 105 110

Gln Thr Ala Ile Arg Glu Val Ala Glu Glu Thr Gly Ile Arg Gly Ser
115 120 125

Val Leu Ala Ala Leu Gly Arg Ile Asp Tyr Trp Phe Val Thr Asp Gly
130 135 140

Arg Arg Val His Lys Thr Val His His Tyr Leu Met Arg Phe Leu Gly
145 150 155 160

Gly Glu Leu Ser Asp Glu Asp Leu Glu Val Ala Glu Val Ala Trp Val
165 170 175

Pro Ile Arg Glu Leu Pro Ser Arg Leu Ala Tyr Ala Asp Glu Arg Arg
180 185 190

Leu Ala Glu Val Ala Asp Glu Leu Ile Asp Lys Leu Gln Ser Asp Gly
195 200 205

Pro Ala Ala Leu Pro Pro Leu Pro Pro Ser Ser Pro Arg Arg Arg Pro
210 215 220

Gln Thr His Ser Arg Ala Arg His Ala Asp Asp Ser Ala Pro Gly Gln
225 230 235 240

His Asn Gly Pro Gly Pro Gly Pro
245

<210> 46
<211> 819
<212> DNA
<213> Mycobacterium tuberculosis

<400> 46
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cgcgccccag ccgggccgcc ggtgccgctg attgtgaatt cgcgccgac accggttctc 660
acggaggccg ccgcggtgga ccgggcgcgc gaacatggac tgccattcct gtttttcacc 720
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atcaccccca ccggtgacgg cgttgccgac ggtctggca 819

<210> 47
<211> 819
<212> DNA
<213> Mycobacterium tuberculosis

<400> 47
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gctcgtgccg tgggtcgcgt gttggccgat cggggcgta ccgggggtgc tcgggtgcgg 180
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cgcgccccag ccgggccgcc ggtgccgctg attgtgaatt cgcgccgac accggttctc 660
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<210> 48
<211> 342
<212> DNA
<213> Mycobacterium tuberculosis

<400> 48
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gcggtgtgtg tcgcggcacg tcgtgacggc aacgcgatga tctattcgat tgccgcaccc	240
gatatcgccg agctgctggc ggtggcacgc aaggtgctgg ccagggtgct cagcgaccgg	300
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<210> 49
 <211> 1032
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 49	
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gttatcgcg ccaagtaccc ggtcaacgtg gcgctgcaca ccgaccactg cccaaggac	300
aagttggaca gctatgtccg gcccttgctg gcgatctcgg cgcaacgct gagcaaaggt	360
ggcaatcctt tgttccagtc gcacatgtgg gacggctcgg cagtgccaat cgatgagaac	420
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gaagcttcga tgagccagcg ggtcgttcag gcgtgcaatg acctgcactg cgccggaaag	1020
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<210> 50
 <211> 339
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 50	
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gacggcaatg	cgttggttgg	gatggttgtc	tcgggcggca	cggttgagta	cgacgccgac	240
gaccgcacat	atgtcgtgca	gctcaccgac	ggaaggcaca	ccactgagtc	atcttttcgaa	300
cactcatcgc	cgagtcgac	acctcaatcc	gatgaccta			339

<210> 51
 <211> 1140
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 51	
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<210> 52
 <211> 1191
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 52
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 gccgccgagg ccatgcygta caccgcgctg gaggccatta tgcggccggg ggctaccgag 480
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<210> 53
 <211> 1338
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 53
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 ccacctgccg gctaccagca tgccgtgccc ggaacgggtg tgcgctcgcg cgatgtcgaa 180
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 gccccgggtc agacctgccc cttgctgtcg taccagtgtg cgatcgatgc catgtcgtcg 360

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<210> 54
 <211> 630
 <212> DNA
 <213> *Mycobacterium tuberculosis*

<400> 54	
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tggtgcgtgg	gacggatcga
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tgctgactat	cccgttcgcc
	180
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tctatgcca	ccaggcccag
	240
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ctgcccgatg	ggctcgtgaac
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	420
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cggtcagctg	gtcgatgaac
cagctccgcc	ggcccgtgcc
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gcgtcgcgcg	ggttgcgggc
	540
gccctgctgg	cgctcactcg
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gcaacgccag	ttggcaaacac
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<210> 55
 <211> 240
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 55
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 cacgtcatga cgaccgtgct ggctacgctg cccgctgacc acggctgcag cgatgaccat 180
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<210> 56
 <211> 1956
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 56
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<210> 57
 <211> 1185
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 57	
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<210> 58
 <211> 282
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 58	
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 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 59	
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 <213> *Mycobacterium tuberculosis*

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 <211> 2715
 <212> DNA
 <213> Mycobacterium tuberculosis

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 <211> 774
 <212> DNA
 <213> Mycobacterium tuberculosis

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<210> 63
 <211> 855
 <212> DNA
 <213> Mycobacterium tuberculosis

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 <211> 885
 <212> DNA
 <213> Mycobacterium tuberculosis

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<210> 65
 <211> 342
 <212> DNA
 <213> Mycobacterium tuberculosis

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<210> 66
 <211> 837
 <212> DNA
 <213> Mycobacterium tuberculosis

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<210> 67
 <211> 1017
 <212> DNA
 <213> Mycobacterium tuberculosis

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<210> 68
 <211> 2043
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 68

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<210> 69
 <211> 432
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 69	
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<210> 70
 <211> 993
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 70	
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<210> 71
 <211> 585
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 71	
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<210> 72
 <211> 816
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 72	
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<210> 73

<211> 1179

<212> DNA

<213> Mycobacterium tuberculosis

<400> 73

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<210> 74
 <211> 1239
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 74
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<210> 75
 <211> 360
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 75
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<210> 76
 <211> 1122
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 76						
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<210> 77
 <211> 537
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 77						
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<210> 78
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 <212> DNA
 <213> *Mycobacterium tuberculosis*

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<210> 79
 <211> 1113
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 79
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<210> 80
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 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 80
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<210> 81
<211> 1032
<212> DNA
<213> Mycobacterium tuberculosis

<400> 81
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<210> 82
<211> 1011
<212> DNA
<213> Mycobacterium tuberculosis

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<210> 83
 <211> 330
 <212> DNA
 <213> Mycobacterium tuberculosis

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<210> 84
 <211> 1389
 <212> DNA
 <213> Mycobacterium tuberculosis

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ttcttatcgt	cgctcgctca	acgcctacgt	ccctgtaccc	ggttcgggca	gcggttacgc	180
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cgatcatgtgt	ggcgcatcgc	cttgccgcgg	cctggcaacg	aagaccagtt	attcgagctg	300
atcgccgac	tgatggcgcg	tcgtttggac	cggggtcgac	cgctgtggga	ggctctgggtc	360
atcgaaggcc	tggcggacag	caagtgggcg	atcctgacca	aactgcacca	ctgcatggcc	420
gacggaatcg	cggcgactca	cctgctagct	gggctctccg	atgaaagtat	gagcgacagc	480
ttcgcgagca	acatccacac	gaccatgcag	tcgcaatccg	catctgtgcg	gcgggggtgga	540
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gtttcgttaa	tgctgccccaa	cctgccgggtg	gatcaagaga	acccgctgca	gcggctgcgg	960
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<210> 85
 <211> 996
 <212> DNA
 <213> *Mycobacterium tuberculosis*

<400> 85	
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gcagctgcgt	agcaccgac
cggacggg	tgagttgatc
180	
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cgatcccaag	gaccgctgcc
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300	
caaccgcttg	ttcccgatca
ggccgatgtc	gccttggcgg
cggccatacc	gcggcgacgc
360	
accgatcggc	gcgcctacag
ttgctggccg	gtgccaggag
gtgacatcgc	gttgatggcc
420	

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tcagacccca gtgccccgat ccccggtcgc ctgttcgccg ggccccgtct gtctcagccg	660
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<210> 86
 <211> 1734
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 86	
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gcctcgattg gttttccgcc gtatcatccg ccgatgcgta ccttcctcgg ggtaccgggt	480
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ttcagcgacg acgacgaggt tctgggtccag gcgctggcgg ccgccgcggg tatcgagtc	600
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aacggcattc cgcgacgggt cgaccgggtc gatttggaag gcctggacga actggccgac	960
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<210> 87
 <211> 804
 <212> DNA
 <213> *Mycobacterium tuberculosis*

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gtgtacgtca tcgatccgct ccaactgtcc gccgccggcg agggcggtgg gcaatcagcg	180
gcccgaagcg cgctgcacga cgccctctcg aaggctcgagg ccaccgggca accgggtcaag	240
atcgaaacgg aggttctgtg cggcaggccg ctcaccaagc tgatgcagga gtccagggtcc	300
gcggcgatgc tgtgcgtcgg ttccggtgggg cttgatcatg tccgcggtcg ccgggggttcg	360
gtcgcggcga ccctggctgg gtcggcctta tgccccgtgg cggtgattca cccgtcgccg	420
gccgagccag cgacaacctc ccaggtcagc gcggttgctg cggaggtgga caatggtgtg	480
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gtccacgctg ctgaaacacc cgatgacgtc gaacagggca gccggttggc gcatgtacac	600
ctgagccgct ggctcgccca ctggacccgg ctctaccccg aggtgcgggt ggatcgggac	660
atcgccggcg gcagtgcgtg ccgtcatctg gccgccaacg caaagccggg tcagctgttc	720
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cttacgggtac gcagtgccaa cttg	804

<210> 88
 <211> 543
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 88
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 ctgccgcagt tggcgaagca tttttacagc caagcggtcg aggaacgaaa ccatgcaatg 180
 atgctcgtgc aacacctgct cgaccgcgac cttcgtgtcg aaattcccgg cgtagacacg 240
 gtgcgaaacc agttcgacag accccgcgag gactggcgc tggcgctcga tcaggaacgc 300
 acagtcaccg accaggtcgg tcggctgaca gcggtggccc gcgacgaggg cgatttcctc 360
 ggcgagcagt tcatgcagtg gttcttgagc gaacagatcg aagaggtggc cttgatggca 420
 accctggtgc ggggttgcca tcgggcccgg gccaacctgt tcgagctaga gaacttcgtc 480
 gcacgtgaag tggatgtggc gccggccgca tcaggcgccc cgcacgctgc cgggggcccgc 540
 etc 543

<210> 89
 <211> 822
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 89
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 gacggcgtgg aatgtgatgt gcggttgacc cgggacgggc atctggtctg tgtgcatgac 180
 cgccgcctgg accgaacctc gacgggagcc ggcttggtca gcacgatgac gctggcccag 240
 ctacgcgagc tggagtacgg cgcggtggac gacagctggc gccccgacgg ttgcacggc 300
 gacaccagtc tgetgaccct ggacgcgctt gtttcgctgg ttttggactg gcaccggccc 360
 gtgaagatct tcgtcgagac caagcatccc gtccgatacg gctcgctggg ggaaaacaag 420
 ctgctggcgc tgctacaccg gttegggtatt gccgcacccg cctccgcaga tcgatcccgt 480
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 gtcggggcaa ccgcgtggg accctcactg cctgcgttaa aggaatatcc gcaactcgtt 660
 gaccgctcgg cagctcaggg ccgggcggtg tactgctgga acgtcgatga gtacgaggac 720
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 aaggcctggc tggaagacgg gcgggcgaac gggaccactc gc 822

<210> 90
 <211> 744
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 90
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 ccggcaacgg cgaagcggtc ccggtcccgc tcacctcgtc gcgggtcgac tcggatgcgc 180
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 gaggagaccg gcatccgcgg cagtgtgctc gccgcgctgg ggcgcatcga ctactggttc 420
 gtcaccgacg gccggcgggt gcacaagacc gtccaccatt atttgatgcg gtttttaggc 480
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 ctgccgtctc gactggccta cgccgacgaa cgtcgactag ccgaggtggc cgacgaactg 600
 atcgacaagc tgcagagcga cggcccccgc gcgcttccgc cgctaccacc cagctcgccct 660
 cgtcgacggc cgaaaacgca ttcacgcgct cgtcatgccg atgactcagc accgggtcag 720
 cacaacggtc ccgggccggg gccg 744

<210> 91
 <211> 88
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 91

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Asp Gln Pro Asp His Arg Gly Leu Ile Ile Glu Val Arg Ser Ser Asp
 20 25 30

Gly Ser Pro Pro Tyr Val Val Arg Trp Leu Glu Thr Asp His Val Ala
 35 40 45

Thr Val Ile Pro Gly Pro Asp Ala Val Val Val Thr Ala Glu Glu Gln
 50 55 60

Asn Ala Ala Asp Glu Arg Ala Gln His Arg Phe Gly Ala Val Gln Ser
 65 70 75 80

Ala Ile Leu His Ala Arg Gly Thr
85

<210> 92
<211> 24
<212> DNA
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<220>
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<210> 93
<211> 19
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<220>
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<400> 93
ttatgccaga ccgtcggca 19

<210> 94
<211> 19
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<220>
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<400> 94
caccatgagc ccgggctcg 19

<210> 95
<211> 20
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<220>
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<400> 95
ttacggcgta cgcgagtcag 20

<210> 96
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<220>
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<400> 96
 caccgtggag tccgaaccgc tgta 24

<210> 97
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<220>
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<400> 97
 ttacgtggcc gagccgc 17

<210> 98
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<220>
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<400> 98
 caccatgcct atcgcaacgc cc 22

<210> 99
 <211> 23
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<220>
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<400> 99
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<210> 100
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<220>
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<400> 100
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<210> 101
 <211> 50
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<400> 101
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<210> 102
 <211> 22
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<220>
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<400> 102
 caccatgggt gagcacgcca tc 22

<210> 103
 <211> 26
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<220>
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<400> 103
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<210> 104
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<400> 104
 caccgtgggt ggcaatcctg atgt 24

<210> 105
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<400> 105
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21

<210> 117
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<220>
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<400> 117
 ttacctggac gcctcctcac tc

22

<210> 118
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<220>
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<400> 118
 caccatgtgc ggcgaccagt c

21

<210> 119
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 <212> DNA
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<220>
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<400> 119
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21

<210> 120
 <211> 25
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<220>
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<400> 120
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25

<210> 121
 <211> 17
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<220>
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<400> 121
 ttagcgccga cggaacg 17

<210> 122
 <211> 49
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<400> 122
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<210> 123
 <211> 51
 <212> DNA
 <213> Artificial

<220>
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<400> 123
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<210> 124
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<220>
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<400> 124
 caccttgtag gcgtcagttg ctgc 24

<210> 125
 <211> 17
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<400> 125
 ttatggcggg tgcgccc 17

<210> 126
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<400> 126
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<210> 127
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<210> 128
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<220>
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<400> 128
caccgtgggc aagcgctctc gg 22

<210> 129
<211> 22
<212> DNA
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<220>
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<400> 129
ttattccgac tcgagtggt ga 22

<210> 130
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<400> 130
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<210> 131
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<210> 142
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 <213> Artificial

<220>
 <223> primer sequence

<400> 142
 caccatgccg gacaccatgg tg 22

<210> 143
 <211> 24
 <212> DNA
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<220>
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<400> 143
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<210> 144
 <211> 52
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<220>
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<400> 144
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<210> 145
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<220>
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<400> 145
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